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PÆDIATRO-MATHEMATICS ; OR THE APPLICATION OF
THE PRINCIPLES OF MATHEMATICS (AND PHYSICAL
CHEMISTRY) TO THE STUDY OF CHILD PHYSIO-
LOGY AND PATHOLOGY.

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CHEMISTRY, like every other branch of natural philosophy, did not become an exact science until it became quantitative, and until such time as the results obtained by the physiologist are capable of being subjected to the same mathematical processes as are those of astronomy, physics and chemistry, physiology will be looked upon as a kind of Cinderella by the priests who worship at the shrines of those sciences which are universally acknowledged as exact.

Probably the first to occupy himself with quantitative measurements in physiology was the Rev. Stephen Hales, who nearly 200 years ago inserted a vertical glass tube into an artery of a horse, and measured the arterial blood-pressure of the animal by the height to which the column of blood rose in the tube. Hales realised that "the most likely way to get any insight into the nature of those parts of the creation which come within our observation must in all reason be to number, weigh and measure."

Since Hales' time a number of pioneers have from time to time applied their mathematical genius to the investigation of various problems in connection with the human body. Foremost amongst these are the brothers Weber and Helmholtz in Germany and the Rev. S. Haughton in England. Haughton's book on 'Animal Mechanism' has, I regret to say, not been given by physiologists the same amount of attention as have the works of the German physiologico-mathematicians.

During the last few years, however, a great tendency for quantitative measurement has manifested itself in the investigation of most physiological problems. This is a very healthy sign, showing, as it does, that the time is fast approaching when the fairy slipper of mathematics will be fitted to the dainty foot of Cinderella and physiology will be declared a princess amongst the exact sciences.

At the same time it must be realised that there are many difficulties in the way of making physiology as exact a science as physics or chemistry. For the animal body is not a test-tube, and whilst in a chemical experiment one can always expect the same qualitative and quantitative results to happen when the same reagents are brought into combination in the same quantities, similar prophecies cannot always be made in experiments conducted on animal bodies. Still, much progress has been made, and much greater progress will, I have every confidence, be made in the near future. In this article I propose to touch upon a few of the quantitative researches that have been carried out in the human infant and the results that have so far been reached.

It will be impossible to go into detail about the various matters in this place. Those who wish to go deeper into the subject will find detailed information in my recently published book on 'Ante-natal and Post-natal Child Physiology.' The numbers in parentheses in the present article refer to the pages and chapters of the book.

(A) RESEARCHES ON INFANT MENSURATION.

(a) *Determination of the surface area of the body.*—Quetelet, some eighty-five years ago, was the first to study the weights and heights of individuals from a mathematico-statistical standpoint. Since then the subject has been intensively investigated by many people, foremost amongst whom are Francis Galton and Karl Pearson with his collaborators and pupils. The results that they achieved have been of enormous medico-sociological value, but their physiological bearing has been almost insignificant. But about forty years ago Meeh was the first to show that a comparatively simple relationship

exists between the weight of an individual and the extent of the superficial area of the same individual. He found that this relationship may be expressed by the following formula :

$$S = K\sqrt[3]{W^2}$$

Where S = surface in square decimetres,

W = weight in kilograms,

and K = a constant, which = 12.3 in adults and which Lissauer found to be = 10.3 in infants.

Since then several other more exact formulæ have been suggested, the most recent of which is that of D. and E. F. Dubois, viz. :

$$S = 0.7184, W^{0.425} \cdot H^{0.725},$$

where S and W are the same as in Meeh's formula and H = height in centimetres.

These relationships between weight and surface or between weight, height and surface are of enormous physiological importance, inasmuch as it has been shown by Rubner (and so far not yet disproved) that *the amount of heat produced by an individual is proportional to the superficial area of his skin*. And as the amount of food required by a person necessarily varies with his or her energy expenditure, it is clear that an exact evaluation of the cutaneous area of an individual becomes of great importance not only physiologically, but from the point of view of practical dietetics. Now it is obviously a very complicated matter to measure the surface area of a human body, but it is very easy to measure a person's height and weight, and hence formulæ which enable one to calculate surface from weight, or from weight and height, at once become of very great physiological value.

To show the actual application of such a formula to a human infant we shall take the following example :

A fairly quiet infant weighing 5 kgrm. (11 lb.) is fed on cow's milk. How much milk does it require per day ?

It has been found from metabolism experiments that the daily maintenance ration of an average infant is 1500 calories per square metre, and the growth quotient (*i. e.* the extra number of calories required for growth) is about 13 per cent. of the maintenance ration, viz. another 200 calories. Hence the total number of calories required = 1700 calories per square metre. Now cow's milk has an average calorific value of 736 calories per litre. Therefore to supply 1700 calories, $\frac{1700}{736} = 2.3$ litres of milk are required. In

other words 2.3 litres of milk are required per square metre of infant per day.

Now from the formula $S = 10 \cdot 3 \sqrt[3]{w^2}$ we get—

$$\begin{aligned} S &= 10 \cdot 3 \sqrt[3]{25}, \\ &= 30 \text{ sq. decimetres,} \\ &= 0 \cdot 3 \text{ sq. metres.} \end{aligned}$$

Hence the daily amount of milk required $= 0 \cdot 3 \times 2 \cdot 3 = 0 \cdot 7$ litres $= 700$ c.c.

$= 25$ oz. (approximately).

This method, though very simple, still requires tedious calculations, inasmuch as it necessitates the extraction of a cube root. D. and E. F. Dubois have published curves which give at a glance the surface of any individual from a knowledge of their heights and weights.

(b) *Determination of intestinal area.*—Very recently a much simpler system of feeding has been established by von Pirquet. His method merely requires a knowledge of the individual's sitting height (*i. e.* the length of his trunk), and the calculation is such as can be done in a few seconds by anybody who can do simple multiplication. The method is ingenious and quite easy to follow. It depends on the fact that energy expenditure is not only a function of the *superficial* area, but is also proportional to the *intestinal* area of the individual. But "what," one may well ask, "has that to do with sitting height?" Well, this: it can be shown that there is a simple relation between the area of a person's intestine and his sitting height. This relation is as follows:

Area of intestine in sq. cm. = (sitting height)². (For the method of deriving this formula see *op. cit.*, pp. 477–479.) Now von Pirquet finds that for a child under six months old the number of grammes of standard milk daily required by it is $0 \cdot 5 (Si)^2$, where Si = sitting height in centimetres.

Thus supposing an infant has a sitting height of 35 cm., then it requires $0 \cdot 5 \times 35^2 = 613$ gm. of milk a day.

It is true that there is a good deal of empiricism in this method but there is this to be said for it—that during the war and since then, when economy in feeding became such an urgent necessity in central Europe, this method was introduced in various hospitals and institutions in Austria with extremely satisfactory results.

(c) The next measurement we shall take up is the *determination of the volume of the body*.

Supposing we are given a football and we are asked to determine its volume, we may understand by that one of two things, *viz.* (a) the *gross* volume, *i. e.* the volume occupied by the fully inflated ball. This would give the volume of the material of which the ball is composed together with that of the air contained inside the ball.

Or (β) the *net* volume, *i. e.* the volume of the material alone as determined by deflating and folding the ball up. In the same way, when we speak of the volume of the human body we mean either its gross volume, by which is understood the volume of the body as a whole, including the gases contained in the respiratory and gastrointestinal tracts, or the net volume, which signifies the volume of the tissues of the body alone exclusive of those gases.

The gross volume of the body can be easily determined hydrostatically by weighing it in and out of water, when gross volume in cubic centimetres = weight in air - weight in water in grammes. Such a determination, however, depending as it does upon the degree of pulmonary and intestinal distension at the time of the experiment, is of no great physiological value. But if one could obtain the net volume of the body, then a certain amount of information would be obtained regarding the composition of the body. This has recently been accomplished by Pfaundler by means of a special apparatus called a volumino-meter, which can be used for adults as well as infants, whether dead or alive (see pp. 384 and 385). Pfaundler found that rickety infants have a higher net volume (or lower net specific gravity) than normal infants, on account of the demineralisation of bone as well as the increased amount of water in the tissues in rickets. On the other hand, in cases of infantile atrophy the net volume is lower (or net specific gravity is higher) on account of the loss of fat, whose specific gravity is less than 1.

It is also clear that a knowledge of the gross and net volumes of the body enables us, by simple subtraction, to ascertain the amount of gas contained in the respiratory and digestive tracts. Thus, suppose the gross volume of a given infant = 2365 c.c. and its net volume = 2060 c.c., then the amount of gas in the infant = $2365 - 2060 = 305$ c.c.

(B) THE LAW OF MINIMAL SURFACE AREA.

The phenomenon of surface tension is one with which students of elementary physics are familiar. A brief discussion of the cause of that phenomenon soon leads to the *law of minimal surface area*, which states that *there is a tendency in every liquid to diminish the area of its surface as much as possible*. Now it can be shown both experimentally and mathematically that the segmentation of the fertilised ovum takes place in accordance with the law of minimal surface area. This may not for the present be of any practical importance, but its academic interest is stupendous.

It is a step forward in the direction of the realisation of His's

dictum that "The ultimate aim of embryology is the mathematical derivation of the adult from the distribution of growth in the germ" (see Chapter VII).

(c) GULDBERG AND WAAGE'S LAW OF MASS ACTION.

The law which regulates the velocity of a chemical reaction between two interacting substances is known as Guldberg and Waage's law of mass action. It states that the velocity of a chemical reaction between two interacting substances is at every moment proportional to the molecular concentration of each of these substances. From this law it is easy to find mathematically at which stage of a reaction the rate of transformation is a maximum. Supposing the degree of concentration of one of the reacting substances at the beginning of a reaction to be A molecules per litre and the amount transformed during a certain period to be X molecules, then it can be proved that when $X = \frac{A}{2}$ the velocity of transformation becomes a maximum. This fact has been utilised to study the rate of pre-natal as well as post-nasal growth.

From certain considerations, into which it will be impossible to enter here, it can be shown that growth is a chemical reaction in which the law of mass action holds good. Hence we ought to find that the rate of growth in weight of any animal should be greatest when the weight attained is half the weight the animal reaches when it stops growing. This has been found by Robertson to be the case.

Robertson claims that it is possible to calculate mathematically the weight of a foetus or of an infant of any age.

This is the briefest outline of a very interesting application of mathematical chemistry to the study of an important phenomenon of childhood. Those who wish to go fully into the subject will find a detailed discussion of the various growth equations with references to literature in Chapter XVIII of my book. Here I wish to mention a very interesting application of these growth equations. It is this: Various data of the neo-natal loss of weight of infants would seem to show that boys lose more during the first few days of post-natal life than girls. This, however, is not the case. By means of these equations it can be shown that the difference in the amount of loss is only apparent, but that in reality the loss as represented by a percentage of the original weight at birth is identical in the two sexes (see p. 279).

(D) THE APPLICATION OF OPTICAL METHODS.

(a) There would at first sight appear to be a far cry between the velocity of light in various fluid media of the body and the metabolism of the body, and yet there is a very close connection between the two. The refractive index of a substance, of course, depends upon the velocity of light through that substance, and it has been found that the refractive index of the blood, like that of any other fluid, varies with the degree of its concentration. The richer the blood is in water the lower is its refractive index and *vice versâ*. Hence by determining the refractive index of the blood of the same individual under different environmental conditions a very good knowledge is obtainable of his water metabolism. In the case of infants this method has been utilised to study the cause of the loss of weight during the first few days of life. Rott has shown that the hæmo-refractometric curve of a newborn infant is a true mirror image of the weight curve (*v. p.* 423). During the first few days, when the weight falls, the refractive index of the blood rises; when the weight falls to the minimum the refractive index rises to its maximum; as the weight begins to rise the refractive index begins to fall. The curves, therefore, prove that the loss of weight at birth is, at any rate, partly due to loss of water.

(b) The quantitative estimation of the various blood-pigments or their derivatives by means of the *spectrophotometer* has been utilised not only for the estimation of the percentage of hæmoglobin in infants' blood intravascularly by placing the infant's little finger in front of the slit of a spectroscope, but also for the study of the circulation and distribution of bile-pigments in the blood of the umbilical cord, in the maternal blood, and in the infant's urine, meconium and fæces, in cases of icterus neonatorum. As the result of a very elaborate spectrophotometric investigation, Ylppö concludes that icterus neonatorum is of hepatogenous origin (see *op. cit.*, pp. 304-309).

(c) The spectrophotometer may also be utilised for the purpose of investigating the quantitative distribution of reduced and oxy-hæmoglobin in fœtuses. Such an examination would decide the debated question of the course of the two streams of blood (superior and inferior caval) in the fœtal circulation. As far as I know no such investigations have yet taken place.

(E) THE APPLICATION OF ELECTRICAL METHODS.

(a) The determination of the electrical conductivity of various fluids in the body is often done for various purposes. In the case of urine, for instance, the electrical conductivity of that fluid gives the number of free ions in it, and consequently the degree of its salt concentration. In the case of infants, for instance, in whom there is physiologically a great retention of salt in the body, we would expect to find a diminished electrical conductivity of the urine.

The depression of freezing-point and the viscosity of a fluid afford similar information.

(b) The importance of a determination of the H-ion concentration of the blood from the point of view of acidosis is familiar to everybody. In the case of newborn infants it has been shown that the H-ion concentration (C_H) is greater than in adults, and in premature infants it is greater than in mature ones.

This explains the greater susceptibility of premature infants to septic diseases, inasmuch as it has been shown that the degree of the blood's resistance to microbic invasion varies inversely with its C_H .

(F) THE PRINCIPLES OF MECHANICS.

The study of the structure and configuration of the infantile skeleton on physico-mathematical lines is another theme bearing on the subject of this paper. This, however, is a matter which is too involved to be considered in this place, and the reader is consequently referred to Chapter XXIV of my *Child Physiology*, for a full illustrated account, where the practical importance of this seemingly academic question is discussed.

Another subject in which elementary mechanical principles play an important rôle, but which on account of its length cannot be discussed in this place, is that dealing with the mechanics of the child's body (Chapter XXVI), whilst the importance of careful measurements of the body from the point of view of the study of growth on scientific lines (Chapter XVIII) is another example of the beneficent influence that the introduction of chemico-mathematical principles has had upon the elucidation of an important phenomenon of prenatal and postnatal child life.

STIGMATA OF PREDISPOSITION TO BONE AND JOINT TUBERCLE.

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(Continued from p. 148.)

NASAL DEFECT.

THE connection of non-tuberculous nasal defect with tuberculosis is a subject with a literature which, strongly inter-corroborative as it is, remains almost unknown even to specialists. We get a hint of its conclusiveness and strength first from Alexander (2). Those who would care to examine it up to date are referred to my book already mentioned, for it is far too long to enter upon here.

We have already noted, in last number, that the two great nasal affections coupled with surgical tubercle are ozæna and catarrhal rhinitis.

As to *ozæna*, early opinion was that, as Trousseau (3) put it, "*L'ozène est parfois une des manifestations de la scrofule*," since it "*s'observe en même temps que le gonflement de la lèvre supérieure, en même temps que des ophthalmies dites scrofuleuses*." That position was soon forsaken. In 1884 Morell Mackenzie (4) wrote that scrofula probably produced a certain disposition to catarrh, but could not be said to produce ozæna. And the majority now takes the view that atrophic rhinitis is the cause of the tuberculosis found along with it; Alexander's masterly investigation removes doubt. That such tuberculosis may affect bones and joints may be seen from the records of those investigating nasal diseases post mortem. Thus of E. Fraenkel's (5) four cases of ozæna, one, a woman, aged 57 years, died of caries of the sacrum; while one of Krause's (6) two ozæna subjects had a complication of diseases including spinal caries.

Catarrhal rhinitis of the scrofulous seems to be a condition so familiar as to escape much description—at all events in rhinological text-books. Moritz Schmidt's well-known work, for instance, has no word about it. However, from the time of Volkmann to the present day the fact is well established that tubercle bacilli are not apparently concerned in its causation. This "scrofulous rhinitis" is a catarrhal one, dependent upon simple micro-organisms other than tubercle. Writers on surgical tuberculosis have deemed it analogous to the other septic infections so common in that affection—

in a word, have considered it a manifestation of the pyogenic scrofulosis aforementioned—and the rhinologists have certainly not contradicted them. Moure, however, the Bordeaux laryngologist, who has also from his great knowledge of rhinology and of special literature helped much in the elucidation of the subject, has tried from the rhinological side to make of it and of other rhino-pathological states a separate nasal affection—“*coryza pseudo-atrophique strumeux*”—non-tuberculous, hereditary, and peculiar to strumous subjects.

He described similarly a “*coryza pseudo-atrophique tuberculeux*” in consumptives. This conception I have perhaps adduced fresh grounds for negativing, in a source already too often cited.

We pass on to our investigation, then, bearing in mind, although not confined to, these three points: *ozæna*, *catarrhal rhinitis*, and their attempted combination, “*coryza pseudo-atrophique strumeux*.”

In our present clinical material the full picture of *ozæna*—an atrophic condition in each nasal fossa, thick crusting, fœtor—was seen in no instance in the 404 tuberculous, although twice in the 573 controls; it is possible, however, that one of the latter was congenital syphilis, not *rhinitis atrophicans fœtidæ*. Amongst the tuberculous were two cases only lacking fœtor to be typical *ozæna*. One had the characteristic broad chamæprosopic face, with the round, vertically tilted nostrils and the flat nose. There was some *eczema introitis narium*. On anterior rhinoscopy the posterior wall of the pharynx was well seen on either side. There was a history of always getting crust from the nose; and the mother said that all the other children were like it, and she herself when young (typical *ozæna* not seldom is hereditary). In the other, purulent rhinitis seemed to have been caught in actual transition into *ozæna* (compare Bosworth's hypothesis of the origin of *ozæna* from juvenile purulent rhinitis). Considerable endo-nasal atrophy was already present, with crusting and muco-purulent secretion all over both nasal fossæ. A younger brother, also with tuberculous dactylitis, had adenoids (compare Pluder's (7) statement that he had often found in families with hereditary tuberculosis part of the children with adenoids and part with *ozæna*). With the advent of puberty and simultaneous enlargement of the upper part of the respiratory tract the nose of this first child will get drier, less easily “blown,” and in all probability fœtid.

Endo-nasal atrophy short of *ozæna*, what may be called a simple atrophic rhinitis as opposed to a fœtid one, was commoner in the tuberculous, occurring 16 times in 404 subjects (3·9 per cent.) as

against 17 times in the 573 controls (2·9 per cent.). In both series it was seen more than twice as frequently in the females as in the males.

Nasal obstruction occurred in 23 per cent. of the tuberculous and in 6·2 per cent of the others. Here the sex-incidence just mentioned was reversed: nasal obstruction was seen, in both tuberculous and non-tuberculous, rather more often amongst the males. The reason of this phenomenon (which Rivers, *loc. cit.*, observed in a more marked form in consumptive and non-tuberculous adults) is probably the varying nasal conformation of the two sexes, males inclining to leptorrhinia, Siebenmann's term for narrowness of the nasal passages, which are then easily obstructed, and females to the infantile platyrrhine type, rather over-broad, in which slight degrees of dryness and of atrophy are soon set up and soon noticed. Compare the known preference of true ozæna for the female sex.

Non-tuberculous abnormalities, neither atrophic nor obstructive, totalled 17 per cent. of the tuberculous, only 4 per cent. of the normals. There was no uneven sex-incidence here.

Altogether the 404 tuberculous subjects had 181 with an abnormal (and non-tuberculous) nasal condition, but the 573 normals only 76—that is, *in bone and joint tubercle non-tuberculous nasal abnormality is more than three times as common as in the general population.*

From a practical standpoint the most striking difference was the preponderance of thin whitish-yellow crusting in the nasal fossæ, especially on the septum; it was seen in 95 of the tuberculous as against 10 of the controls—that is, more than ten times as often. This characteristic appearance was in both series a little commoner in the females, probably for anatomical reasons already adduced. It was four times less frequent in the Barnsley cases than in the others—very largely because this lot of cases contained all the adults in the material, since the Barnsley children showed crusting just about as often as—in fact a trifle oftener than—the Alton or Sheffield ones did. But in 32 adults with bone and joint tubercle crusting was not seen at all.

This finding is one of the points—for the sake of balance and space one cannot enter here into a rhinological dissertation—telling against Moure's conception of nasal abnormality of tuberculous persons as a disease which, although not tuberculous, is *sui generis*. He says, for instance, that the endo-nasal appearances become more marked with the advance of the tubercle. But these adults had on the average suffered with tubercle much longer than the children had. Moure says that in the strumous an initial nasal hypertrophy, with

consequent obstruction, may change to atrophy later on. But that occurs in the non-tuberculous too; the end stage of hyperplasia of the nasal mucosa is naturally atrophy, and the local pressure and surface tension set up by crusted secretion also tend to produce atrophy. Moreover the cases with severest nasal atrophy were certainly not those with the most advanced tuberculosis. However, the testimony of a noted laryngologist is valuable as establishing the prevalence of this complication (to call it only that) of surgical tubercle. But the most reasonable view to take is to suppose, with Cornet, a sensitiveness to pyogenic organisms on the part of the nasal mucosa comparable to that undoubtedly existing in scrofula in other parts of the body, and an accentuation of the tendency to dryness of the integuments common in children, especially those in any kind of ill-health. All this is aggravated in the subjects of past adenoids, from the hypertrophic rhinitis accompanying them passing on into dryness and atrophy.

In sum, you get impairment of nasal respiration—either qualitative, from drying up of the normal Schneiderian secretion, or quantitative, from blocking of the nose by hypertrophy, by adenoids, by crusts. With the first respiratory barrier to infection thus weakened, external noxæ find it easier to penetrate the system, by the respiratory portal, by the lympho-hæmic, or by the alimentary.

The three points forming the main subject-matter of this Chapter II have now been discussed, and it remains only to gather up the ends with a few further observations. In nearly every investigation, especially if it is worth anything, there is an element of what Horace Walpole called *serendipity*—that is, in looking for one thing one is likely to come upon another. It had been suspected that there might be an association of mental unsoundness with bone and joint tubercle, just as there undoubtedly is with consumption; for it is well recognised that lunatics and idiots, even in modern hygienic institutions healthier to live in than the usual home, yet die of phthisis far in excess of ordinary rates.* And this association presented itself quite prominently. One of the thirty-two adult Barnsley cases, a young woman with tuberculosis of the knee which had almost healed, was obviously faulty mentally. Her appearance and behaviour were unusual, she relied on others to answer questions

* Those who would explain such excess by extra opportunities of infection are clearly ignorant how great it is. In 1901 there were about 60,000 deaths from tuberculosis in England and Wales to a population of $32\frac{1}{2}$ millions, or under .2 per cent. But in that year the tuberculosis death-rate in borough and county asylums was 15.8 per cent. of the inmates!

for her, could not read or write, and easily got excited, when her voice became hoarse and peculiar. One of the Alton cases was a hopeless idiot unable to speak, which was being sent out as requiring more supervision than a hospital could be expected to give. However, on this point it is an advantage to be able to quote expert opinion quite unbiassed by any preconception.

The head teacher at Alton said that out of the other 258 children seen—that is, not counting the idiot—three or four were definitely “M.D.” (mentally defective), that some further children were very backward, but did make progress on being persevered with, and that some were very clever. This agrees well enough with what is known, for if mental deficiency is correlated with tuberculosis, so is a certain intellectual brilliance. The report of the Sheffield teachers was that 2 out of the 92 were mentally defective. Leaving the idiot out of count, this makes 5 or 6 mental defectives out of 350, or a percentage of at least 1·4.

How does this compare with the general average?

A head mistress of the juvenile department of a large Yorkshire school, who thus saw the children on entry at the age of five, when none had had education, and a very striking mental defect would be needed to prevent a child attending, considered 2 mentally defective out of 273, or a percentage of 0·7. Another head mistress, taking the results for three years past, gave 0·4 per cent.; a head master of a school of 340 children, including infants, gave 0·5. In the London County Council school medical officer's report for 1918 the proportion of mentally defective is—at 8–9 years 0·13 per cent., and at 13 years 0·015 per cent.

Since severe idiocy is excluded from the control series as well as from the tuberculous one, a comparison may fairly be drawn. It indicates that *at the very least mental defect is twice as common in surgical tubercle patients as in the ordinary run of children—probably three or four times as common*—and if idiots and imbeciles, who get very early into mental institutions, were taken into consideration, the disproportion would be considerably greater.

As against the view that the mental defect was a product of tuberculo-toxæmia, there is, first, its occurrence in the control series—that is, in non-tuberculous children; while secondly, in both normals and tuberculous it was often associated, so teachers from either side assured me, with a certain artistic aptitude.* The Alton teachers

* A phenomenon frequently mentioned in text-books on mentally defective children. Compare the same facility in low-grade savages and in prehistoric man, as mentioned by many writers—for instance, Galton, ‘Inquiries into Human Faculty,’ 2nd ed. (London: Dent & Co.), p. 72.

found some of these children apt at the modelling and fancy work ; one of them could design patterns—a rare capacity. The head master just quoted instanced a boy of thirteen, unable to write his name, who was useful in executing blackboard illustrations. Now if the mental defect was tuberculo-toxic, so also would the artistic ability be. Tuberculo-toxæmia, in truth, is, as an ætiological factor, inhumanely overworked. The better hypothesis is that both mental defect and artistic capacity have strong degenerative, atavistic affinities.

HYPERTRICHOSIS.

“Idiots,” says Darwin (8), quoting several authorities (Pinel, Maudsley, etc.), “often show pronounced hairiness”; he gives this as a “theroid,” brute-like, or atavistic trait. We read again (*ibid.*, pp. 19, 20): “Many delicate children, as I have been assured by a surgeon to a hospital for children, have their backs covered by rather long silky hairs ; and such cases probably come under the same head.”

The last clause refers to this hairiness being a persistence of the fœtal lanugo, which Darwin pronounces to be the rudiment of the uniform hairy coat of animals. It is well known as a characteristic of surgically tuberculous children, although, so strong is the present bacteriological craze, it is referred to in conversation much more often than in the text-books. Accordingly it seemed worth while to institute a comparison, which resulted thus. In the Alton cases, which were observed particularly in this respect, fine downy hair on the body or limbs occurred in 3 out of 130 boys (2·3 per cent.), and in 3 out of 116 girls. In a control of 181 normal school-boys it was seen only once (0·5 per cent.), and then in a degree far less than in any of the tuberculous cases. It was always quite another thing from the long, sparse, coarse hair growing over an inflamed joint (which, indeed, Darwin was also aware of), and occurred at times only on the limbs in spinal disease, and only on the trunk in morbus coxæ.

SQUINT.

Squint did not (as I had expected) occur over-frequently in the tuberculous children—indeed, probably with under-frequency : there were only two squints and three heterophorias in all the Alton and Sheffield children. Two in 350 is 0·5 per cent., whereas the normal occurrence is about 2 per cent. This is a negative result of some interest, for in consumptives I found (*loc. cit.*) squint about thrice as frequently as in the non-tuberculous. It may indicate, if these

figures are confirmed, that squint is a sign of predisposition to adult pulmonary, but not to juvenile osseous, tubercle, and thus (at a long shot!) be associated with some abnormality of the respiratory system. And here let me answer two criticisms (Review in New York 'Archives of Ophthalmology,' 1918, xlviii, p. 215, and Dr. B. Richardson in some friendly and valuable remarks in this Journal, 1918, xv, p. 201), on my results with consumptives. My figures were—consumptives, 1·2 per cent. squinters; comparable control, 0·4 per cent. squinters. The American quoted Hansen's finding of 2·5 per cent. of non-tuberculous children with squint, Dr. Richardson her own school medical inspection figures of 1·2 to 1·7. Both, therefore, doubted 1·2 per cent. in consumptives representing an excess. But perhaps neither considered the question of age. My consumptives were mainly adults, with fewer adolescents and no children; and so therefore were my controls likewise, in which controls only 0·4 per cent. were found with squint. Now results have lately been published which corroborate this last figure. Dr. Comrie ('Lancet,' 1919, ii, p. 957), in 10,000 recruits, regarded by him (and by the writer of an editorial in the number containing his contribution) as representing a fair sample of the male population, found the squinting percentage to be 0·3. This is practically identical with my finding, which, relating to both sexes, might be expected, since squint is considered a little commoner in females, to be rather larger than one obtained from men only. It would seem, indeed, that the proportion of adults who squint is greatly less than that of squinting children. And since hardly any in the working class get their eyes cured, we may (again postulating a necessary confirmation of our premises) speculate that squinting children have a rather high mortality. It is to be remembered, too, that as squint is over-frequent in lunatics, a few will pass from the general community into asylums.

It is now high time to come, in both senses, to

CONCLUSIONS.

(1) Denial or neglect of intrinsic predisposition to bone and joint tubercle betokens not only want of clinical insight, but the need to read up the subject.

(2) It looks as though a good part of such predisposition were not due to a single undefined susceptibility, but was multiform, made up of several separate abnormalities acting probably by mechanical facilitation of infection, or else associated with other undiscovered abnormalities so acting.

(3) For the facts and findings adduced concerning pigmentation, ichthyosis, nasal defect and mental unsoundness are certainly best explained by regarding them in the light of intrinsic contributory causes.

(4) There are obviously several practical bearings—diagnostic, prophylactic and other. For instance, until that desirable day when, in fairly temperate climates, all schools are open-air schools, children affected as just mentioned should be educated at the open-air school and brought up to open-air employment; while the noting of these stigmata of tuberculous predisposition should form part of the routine work of school medical inspection. The only special training needed would be in rhinology—desirable, too, on other grounds.

(5) Lastly, the eugenic aspect must not be missed. These stigmata have undeniably a degenerate, atavistic quality, and the crude eugenic activity of the bacillus of Koch should be humanely replaced. No tuberculous ichthyotic (unless of great intellectual parts), no tuberculous mental defective should be allowed to reproduce. Tuberculosis clinicians who think only of therapeutics and prophylaxis commit the error of which Benjamin Franklin wrote to Fothergill:

“You think you are doing good; not at all. . . . You are interfering with Nature’s provision for the destruction of the unfit. It is as if a Prime Minister should exercise himself in pardoning all the criminals in the country.”

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- (2) ‘Archiv für Laryngologie,’ 1903, xiv, p. 1.
- (3) ‘Gazette des Hôpitaux,’ 1860, xxxiii, p. 97; ‘Cliniques médicales de l’Hôtel-Dieu de Paris,’ 1865, i, p. 544.
- (4) ‘A Manual of Diseases of the Throat and Nose,’ London, 1884.
- (5) ‘Virchow’s Archiv,’ 1896, cxliii, p. 42.
- (6) *Ibid.*, 1881, lxxxv, p. 226.
- (7) ‘68 Versammlung deutscher Naturforscher und Aerzte zu Frankfort,’ September, 1896 (discussion).
- (8) ‘Descent of Man,’ 2nd ed., Chapter ii, p. 36.

CONGENITAL PULMONARY REGURGITATION (TRANS-
POSITION OF THE SPLEEN).

By EDMUND CAUTLEY, M.D., F.R.C.P.

PULMONARY regurgitation is of rare occurrence at all ages, and especially so in early life. When it does occur it is usually due to infective endocarditis, sometimes secondary to pulmonary stenosis. A temporary regurgitant murmur is occasionally heard in cases of mitral stenosis, the increased pressure in the pulmonary circulation causing distension of the pulmonary artery. The case here recorded is apparently of congenital origin, and due to an abnormally large pulmonary artery and orifice.

Marjorie E—, born on April the 11th, 1920, was admitted into the Belgrave Hospital for Children on June the 25th for cyanosis and dyspnœa, and died two days later. She was a firstborn child, breast fed and well nourished, weighing 8 lb. 13 oz. The family history was unimportant.

According to the mother the child had been short of breath since birth and had occasionally gone blue, especially after crying. For two days she had been more blue and had abdominal distension. There was no vomiting, and the stools were normal.

Respirations were very frequent. The chest did not expand during inspiration, and the lower ribs were sucked in. No dulness or adventitious respiratory sounds were found.

The apex of the heart was outside the nipple line in the fifth intercostal space, the right border $\frac{1}{2}$ in. to the right of the sternum, and the left border almost reached the anterior axillary line; dulness extended up to the second left intercostal space. The sounds at the apex were short and flapping, and a short diastolic murmur was heard in the second and third intercostal spaces to the left of the sternum.

The abdomen was distended and hard, the edge of the liver 2 in. below the costal margin.

Course.—The child had much difficulty in taking food, panting, and being unable to get her breath. During the afternoon of the 26th she became extremely distressed after a feed, with deeply cyanosed lips and loud, gasping respirations, the abdomen more distended and hard. From this she gradually recovered under inhalations of oxygen. A less severe attack at 10 p.m. was relieved by a glycerine enema. Further attacks occurred during the night, and ended in death at 7 a.m.

For the notes of the case I am indebted to my House-Physician, Miss Cox. Unfortunately I did not see the patient during life.

Post-mortem.—Some clear fluid in pericardial and peritoneal cavities. The left lower lobe of the lung was partially collapsed, perhaps in consequence of the large heart. There was no evidence of any bronchial or pulmonary catarrh. The heart was much larger than normal. Both the right auricle and ventricle were relatively much hypertrophied and somewhat dilated, while the left auricle and ventricle were unduly small in proportion to the size of the child, and still more so in proportion to those of the right side of the heart. The pulmonary artery and orifice were much larger than normal, the orifice admitting a small little finger and measuring in diameter $\frac{7}{16}$ in. as against an aortic orifice of $\frac{4}{16}$ in. No other abnormality was found.

The liver was congested and rather large. The spleen was small and congested, and situated between the right lobe of the liver and the diaphragm, together with many pea-like accessory spleens.

Comments.—I think that there is no doubt that this condition was of congenital origin and the result of the formation of an unduly large pulmonary artery. The tendency to congenital deformity is supported by the transposition of the spleen. Probably the final illness was the result of collapse of a portion of the lower lobe of the left lung. Whether this was due to abdominal distension, the result of indigestion, or the cause of the distension is uncertain. There was no evidence of alimentary disturbance, as shown by the stools, and no vomiting.* The temperature was subnormal throughout.

The case is particularly interesting on account of the rarity of congenital pulmonary regurgitation, and because of its association with transposition of the spleen.

Pulmonary regurgitation is difficult of diagnosis, perhaps because it is not suspected. In the case of a girl,* aged 15 years, a diastolic murmur was present for six months before death from verrucose endocarditis of the pulmonary valves. In another girl† of the same age there was a history of scarlet fever at the age of 9 years, and a cardiac affection recognised at that time. She came under my observation with the physical signs of a simple pulmonary regurgitation. Various other diagnoses were suggested when she was shown at a clinical meeting, viz. mitral stenosis,

* 'Reps. Soc. Study Dis. Child.,' 1902, ii, p. 45; and 'Lancet,' 1902, i, p. 223.

† 'Proc. Roy. Soc. Med.,' 1915, viii, Child. Sect., p. 65; and BRITISH JOURNAL OF CHILDREN'S DISEASES, 1915, xii, p. 143.

pulmonary regurgitation and possibly mitral stenosis leading to back-pressure, and aortic regurgitation, but the general opinion was in favour of uncomplicated pulmonary regurgitation.

BRIEF CONSIDERATIONS ON SURGICAL TUBERCULOSIS IN INFANTS.

By CHARLES GREENE CUMSTON, M.D.,

Lecturer at the University of Geneva; Honorary Member of the Surgical Society of Belgium; Member of the Surgical Society of Switzerland, etc.

GENEVA, SWITZERLAND.

AFTER thirty years of surgical practice, a fair proportion of which has been among children of all ages and particularly in infants, derived from a connection for a number of years with a hospital for babies and very young subjects, I feel that the following considerations may not be devoid of interest to those engaged in pædiatric work.

Mesenteric adenopathy and tuberculous peritonitis.—Of tuberculosis of the mesenteric lymphnodes in infants I have no notes, nor have I any recollection of a case in consultation practice. However, no less an authority than Marfan has stated that this process may be suspected when the subject presents a large abdomen, chronically distended and tympanitic, but *without* diarrhœa.

I have never met with an instance of tuberculous peritonitis in infants, at least so far as I am aware. If a case has been seen, then it has been a failure on my part to make the diagnosis. According to Weill and Péhu, tuberculosis of the peritoneum in the infant is characterised by an increase in the size of the belly with meteorism and collateral circulation. Pain is absent or moderate and the temperature hardly, if at all, raised.

Subcutaneous abscess.—This process is, according to my experience, a common one in infants presenting evidence of tuberculous impregnation and is due to the ordinary bacteria of suppuration, whose development is highly favoured by the tuberculous soil in which they become inoculated. The subcutaneous abscesses are multiple and disseminated over the body surface, and last for months. On the

other hand, one will meet with instances in which they remain limited to the scalp, subungual dermis, the gluteal or malar regions.

Subcutaneous gummata.—These are frequently encountered in tuberculous infants and I agree with Weill and Mouriquand in that this lesion is an excellent sign of tuberculous impregnation. The lesion may be scattered over the body, or localised to the gluteal region or limbs. I have occasionally met with this lesion in infants from six months to one year of age, but it unquestionably becomes frequent after the first year of life.

Tuberculosis of the lymphatics.—Tuberculous adenopathy may be local or generalised. In the former case the cervical region is the commonest situation. I have seen only one or two cases in nurslings, but the process is, in my experience, not uncommon during the second year of life, and not infrequently is the sole apparent evidence of tuberculous infection, although oftentimes the peribronchial lymphnodes will be found involved both on physical examination and by radiography.

The lymphnodes may suppurate or remain in a quiescent state, but when pus develops it does so slowly without acute or subacute phenomenon. These are, of course, exceptions to this rule. Tuberculosis may also attack the axillary, iliac and inguinal lymphnodes in infants, but I fancy these localizations must be rather uncommon. An interesting point has been referred to by some observers—Hutinel and Tixier among others—namely, that enlarged axillary lymphnodes should lead one to suspect the presence of pleuro-pulmonary or mediastinal tuberculous lesions.

Finally, these adenopathies may become general and then we have to deal with micro-polyadenia, the elements of which give to the examining fingers the sensation as if particles of shot had been inserted under the skin. If this morbid process be met with in an otherwise intact cutaneous surface it is an excellent evidence of tuberculous impregnation, although I would hasten to add that it may be encountered in other infections, such as syphilitic cachexia, chronic septicæmia of gastro-intestinal origin, as well as the cachexia following upon acute infective processes, subacute broncho-pneumonia, measles, etc.

Tuberculous infection of the epididymis and testicle.—I have seen several examples of this lesion in infants varying in age from six months to two years. They all gave a positive cuti-reaction and presented in most instances some other tuberculous lesion as well. The process involved only one testicle and in one or two cases there was some hydrocele. L. Rocher has met with three cases, but he

maintains that this is a rare localization of tuberculosis in infants and that it is benign, statements that are in accord with what I have been able to observe.

Bone and joint tuberculosis.—Cases of these lesions I have only seen in consultation practice and cannot, therefore, offer any details as to the outcome of the case. I have seen two well-defined instances of Potts' disease, one in the cervical, the other in the mid-dorsal region in infants aged respectively 11 months and 21 months. Several instances of spina ventosa in subjects under two years of age are among my case-histories; also three instances of tuberculous knee-joint, one in an infant of 13 months, the two other subjects being each 21 months old.

Tuberculous rickets.—Under this denomination I am not referring to rickets in tuberculous infants, but to true tuberculous rickets. Of this process I have seen a dozen cases: five were in breast-fed infants, seven in artificially fed infants, but under the supervision of highly competent physicians. None of these subjects had ever presented any notable digestive disturbances. The affection was seen in about equal proportion in the first and second year of life.

These infants are anæmic, pale, and at 16 to 18 months still refuse to walk. The tibia presents an incurvation with the symptom described by Marfan, namely, a supramalleolar thickening of the bone; there is broadening of the epiphyses of the wrist, bending of the ribs, and inframammary narrowing of the thorax, projecting forehead and a largely widened fontanelle.

The belly is often enlarged and flabby, there are adenoids, polyadenia, and splenomegaly, with or without an enlarged liver. The splenic enlargement is especially frequent, and when encountered in infants above the age of one year is most suggestive of tuberculous infection.

I am of the opinion that tuberculous osteo-periostitis frequently coexists with tuberculous rickets, although other evidences of the affection may be wanting.

PRIMARY SARCOMA OF SMALL INTESTINE CAUSING UNUSUAL SYMPTOMS.*

By W. MAXWELL TELLING, M.D., F.R.C.P.,

Hon. Physician, Leeds General Infirmary.

THE specimen shown is that of a small polypoid sarcoma, primary in the small bowel, in a boy, aged $3\frac{1}{2}$ years. The clinical history and physical signs were of such interest, and the variety of growth is so unusual, that I think the case is worth putting on record.

The child was sent to me by Dr. Humphrys, of Retford, on May the 3rd, with a history of intermittent attacks of abdominal colic since the previous October—about seven months. At first the attacks of colic had come on about every three or four days, and had lasted from half an hour to an hour. The pain was of some severity, causing the child to cry and to be very restless. The attacks increased in severity and duration till they were occurring daily and lasting for several hours. He was in an attack when I first saw him, and it had then lasted five and a half hours. For about fourteen days preceding this vomiting had usually occurred with the attacks. The child had always had constipation, which had not been unusually worse since the colic had been present, as it was easily controlled by simple aperients. No blood had ever been noted in the stools. The boy was healthy looking and had not lost much in weight. His doctor had noted a sausage-shaped tumour during some of the attacks. This disappeared in the intervals, when he would be perfectly well and cheerful.

On May the 3rd a considerable sausage-shaped tumour was felt to be extending transversely across the hypogastrium from one iliac fossa to the other. Its consistence varied with palpation, and it was obviously a contracting coil of gut. Handling it did not appear to increase his pain or discomfort, which persisted throughout an attack, but was not more than to make him fretful and whimpering. A small nodular mass was felt in the left hypochondriac region and was thought to be faecal. Its disappearance after an enema appeared to confirm this. It was not noted again.

I at once admitted the boy to hospital, where daily enemata for a few days appeared to make him more comfortable, the duration and severity of the attacks diminishing, but they increased again before long. During this period of nine days before operation the peri-

* A paper read before the Section for the Study of Disease in Children of the Royal Society of Medicine at the Provincial Meeting held at Manchester on June the 18th and 19th, 1920.

staltic tumour was observed in a variety of positions, and under conditions of varying thickness and size. When present there was never the slightest rigidity, the abdomen being palpable with the greatest ease and the tumour clearly definable and peristaltic. It was sometimes present when the child was not in obvious pain, but when the abdomen was quite normal to palpation, as it not infrequently was, his manner became alert and vivacious. He was then a happy and apparently quite healthy child.

The tumour was 2 to 3 in. in thickness and from 6 to 15 in. long, usually a little curved, and typically sausage-shaped. It was visible by inspection. When the tumour was palpated we at once thought the condition was an intussusception; indeed the child was shown at a meeting of the Leeds and West Riding Medico-Chirurgical Society, and the almost universal diagnosis was chronic intussusception.

The stools were normal throughout. An X-ray examination by Dr. Scargell proved practically negative. Six hours after a barium meal the barium filled the terminal 9 in. of the ileum, and was present in the cæcum, ascending and transverse colon. A small amount of barium was noted in a loop of small intestine just above and to the left of the umbilicus. Subsequent findings at operations would lead me to suppose that this was at the site of and had been "held up" by the growth. A barium enema immediately reached the cæcum and gave a perfectly normal presentation of the whole of the large intestine.

I was not satisfied with the favoured diagnosis of chronic intussusception to explain all the observed conditions, regarding it, as well, as inconsistent with the absence of certain signs and symptoms. The tumour was clearly a contracting coil of bowel; from the variability of position it was equally clearly a contracting coil of the small bowel. This was also confirmed by the absolute normality of the large bowel on X-ray examination. From the periodic and complete disappearance of the tumour, if an intussusception, it would obviously have had to be of the "in-and-out" variety, and a lesion of this duration transcends my experience. A further difficulty on this hypothesis would seem to be the occasionally great length of the tumour (as much as 15 in. being noted). The variability of the site of the tumour pointed to its position in such a part of the small bowel as was free to move, and was therefore not at the beginning or end portions of that tube. It was therefore fairly obvious that this tumour-forming loop of small intestine must *carry its lesion with it*—that is, the lesion must be in the wall or lumen of the gut, and

was not a lesion imposed on it from without, for that would have been inconsistent with the wide range of mobility observed.

It was also fairly clear that the obstruction was never more than partial, but beyond this point it was difficult to arrive at certainty. From the complete intermission of both tumour-formation and symptoms, it was difficult to posit a lesion confined to the *wall* of the gut with a hypertrophied coil proximal to it. The stenosis would have had to be considerable, and to produce such a considerable degree of gut contraction behind it it would surely have been visible by X-ray examination, and a cause of notable delay in the downward passage of the meal. This was not the case. I therefore thought the *lumen* was probably encroached upon by a tumour which was capable of varying its position; that it was probably something in the nature of a pedunculated and polypoid growth. One would naturally suppose this to be non-malignant on the grounds of probability. A tuberculous lesion seemed entirely unlikely.

My final diagnosis, therefore, was a tumour, probably polypoid, pedunculated and non-malignant, projecting into the lumen of the small intestine at some distance from its fixed ends, and by some degree of mobility within the lumen causing recurrent partial obstruction, with spasm of the gut immediately proximal to the lesion.

Laparotomy was performed on May the 12th by my colleague, Mr. Coupland. A mesial incision was made and the loop of bowel containing the lesion presented immediately. It was felt to be some kind of stricture and a few small glands were noted on the surface. It was regarded at the moment as tuberculous, and enlarged glands in the adjacent mesentery were carefully sought for but not found. Some 3 in. of bowel were excised. Recovery was uneventful.

Later, when I saw the specimen, I was convinced from external examination that it was not tuberculous, and on laying open the bowel the small polypoid mass was revealed. It was oval, about $\frac{3}{4}$ in. by $1\frac{1}{4}$ in. in diameter, and projecting $\frac{3}{4}$ in. into the lumen, a typical button-growth and obviously malignant, the small glands on the external surface being infiltrated. Histological examination was made by Prof. Stewart, who reported that it was a spindle-celled sarcoma.

In reviewing the case, the diagnosis, though not completely accurate, was an approximation to accuracy. The malignant nature of the growth was surprising and remarkable, but not more so than the variable but considerable degree of obstruction which it caused. To explain this I had postulated a growth movable in the lumen ;

this was not the case, and one can only suppose, therefore, that there occurred a kinking or angulation at the site of the tumour. Otherwise the obstructive phenomena are inexplicable.

The long history of the case and apparent solitariness of the growth point to a low degree of malignancy. This was further supported by the absence of detectable enlargement of the mesenteric glands. It is rather too much to expect a radical cure in this case, but that time will prove.

Sarcoma of the small intestine is a rare lesion and is usually lymphosarcoma. Further, its growth is usually rapid, with considerable tumour-formation and cachexia; stenosis and obstructive symptoms are very exceptional. Apart from a congenital case I have not found an example recorded under four years of age, but I have not exhaustively searched the literature. In all these respects, therefore, the case is very exceptional.

ŒSOPHAGEAL OBSTRUCTION IN YOUNG CHILDREN.

By HUGH T. ASHEY, M.D.,

Physician to the Manchester Children's Hospital.

LATELY I have come across five cases of obstruction of the lower end of the œsophagus, which I think may be of interest in many ways. The condition is first noticed at the age of ten to twelve months, when solid food should be started. At this age solids are vomited, when liquids, as before, are kept down. The vomiting of solid food is at first thought to be a habit, and due to the child taking to solid food badly. After a time the vomiting of solid food becomes more marked and the condition is thought more seriously of by the parents and the doctor.

The vomiting of solids is not continuous at first, but later on it may be repeated at short intervals. Liquids are generally kept down well, except in well-established cases. Both sexes seem to be equally affected. In all my cases the site of the stricture is about 1 in. above the stomach.

Diagnosis.—X rays with bismuth are useful and conclusive, showing how the bismuth collects in the dilated œsophagus above the obstruction. The vomit also does not reach the stomach.

Illustrative cases.—Girl, under observation for three years; aged 4 years at death. The mother states that she has always vomited

more or less after solid food and had become worse in this lately (three weeks before death). She had two sisters and one brother. No history of tuberculosis or syphilis in the family; Wassermann reaction negative. First admitted to hospital at the age of $1\frac{1}{2}$ years, when the condition was first diagnosed with the help of X rays. Treatment consisted of careful feeding and dilatation of the œsophagus at short intervals. The child continued vomiting solids, but was relieved by the passage of bougies at regular intervals until admitted to hospital one and a half years later (April, 1920), where she died. She had remained stationary in weight, with some variations for the last one and a half years.

Autopsy.—There was no evidence of mediastinal inflammation. The œsophagus was easily removed from the trachea. There was a well-marked thick fibrous stricture in the œsophagus 1 in. in length and about 1 in. above the cardiac end of the stomach. The œsophagus above the stricture was slightly pouched and had thick walls. The lumen of the stricture just allowed a fine probe to pass through. A section of the stricture showed much hypertrophy of muscle with an excess of fibrous tissue.

Treatment.—Treatment consists in keeping the food as liquid and soft as possible during the time that the spasm is severe, and in feeding, if well, during the quiescent period. The stricture should be dilated carefully with œsophageal bougies at regular intervals, and with this treatment the children generally, and anyhow for a time, keep fairly well. Directly the dilatation is left for more than two to three weeks the vomiting starts again. The parents get to know this, and become very regular in bringing their children to hospital. Often, however, the stricture becomes so tight that an anæsthetic is needed to pass the bougies, but under an anæsthetic they pass easily.

In future, with well-marked cases, I think it would be well to do an early gastrostomy and to feed the child entirely by this way for some weeks, so as to give the stricture an entire rest from the irritation of food.

Pathology.—I think it likely that the condition is primarily spasmodic in origin and later becomes fibrous as in the case just recorded. The œsophagus is the narrowest and most muscular part of the alimentary tract with the exception of the pylorus. This being so, it is natural to put the condition on a par with hypertrophic stenosis of the pylorus. In favour of this is the fact that the stricture is always in the same place about 1 in. above the stomach. The symptoms resemble hypertrophic stenosis of the pylorus in that

food is often kept down for a short time, then later on is regurgitated.

There is no history of swallowing caustics or of injury, and it is unlikely that an ulcer would cause the condition and be always in the same part of the œsophagus.

TRANSMITTED CONGENITAL SYPHILIS.

By D. H. PATERSON, M.D.,

Medical Registrar and Pathologist. Hospital for Sick Children, Great Ormond Street.

The following is a case of interest, as it seems to prove beyond a doubt that congenital syphilis may be transmitted from mother to child, a fact that is not generally admitted.*



The patient was a child aged $2\frac{1}{2}$ years. The complaint was that he was backward. He was admitted under Dr. Robert Hutchison to the Hospital for Sick Children, Great Ormond Street. He had the characteristic facies of congenital syphilis and seemed a very

* Still, Power and Murphy's "System of Syphilis," Vol. i, p. 289.

mentally deficient child. His Wassermann reaction was positive. Owing to his restlessness it was impossible to obtain a satisfactory photograph. His mother, whose photograph accompanies this note, shows the very characteristic features of congenital syphilis, and her Wassermann reaction was + + +. She had suffered as a child with interstitial keratitis and showed faint traces of the affection on examination. Note the depressed bridge to her nose and the well marked external strabismus. Her age was thirty-three and that of her husband thirty-two. She has one child aged 9 years which does not appear syphilitic. Then comes the patient, and then a miscarriage, and finally a baby aged 2 months.

The father's Wassermann reaction is negative and the baby aged 2 months has a negative Wassermann reaction also.

The mother's mother or the maternal grandmother died of locomotor ataxia. She gave birth to several children, but only the last two survived, the others dying at an early age.

The mother's sister is said to be healthy.

Apparently, then, the disease has been transmitted from the maternal grandmother to her daughter, who has given birth to a syphilitic child, the patient. The possibility of the mother of the patient having become reinfected prior to his birth has been considered, but there is no reason to believe that such was the case.

I have to thank Dr. Robert Hutchison for allowing me to publish this case.

Royal Society of Medicine.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

Provincial Meeting held at Manchester June the 18th and 19th, 1920.

The President, Mr. J. P. LOCKHART-MUMMERY, in the Chair.

Testing and Grading of Cardio-respiratory Power among School Children.—Dr. A. A. MUMFORD stated the ordinary "resting" breathing of young children was almost entirely abdominal, being constituted by movements of the abdominal walls and spine as well as by movements of the diaphragm. The breathing of effort in childhood was a compound partly of an increase of abdominal breathing and partly of an upper chest movement. The upper chest movement was at first largely confined to the left of the sternum, but with the development of the shoulders and out-growth of the upper ribs, which occurred about the age of six years, a lateral expansive movement occurred. Muscular efforts of varying range of amplitude and force produced varying degrees of pressure of air in the lungs. By measuring respiratory pressure, then, the influence of age and of vital

powers was seen. In children under eight years old or in those undeveloped owing to rickets and tuberculosis it was difficult to use the spirometer. By getting the child to breathe slowly into an ordinary U-tube mercurial manometer some measure of respiratory power could be obtained. Two tests should be taken, one of respiratory *range*, by noting the height to which the mercury would ascend, and the other of respiratory *power*, by measuring the duration of time in seconds in which it could be sustained at a low pressure. The deficient respiratory power in rickets as well as in tuberculosis and in compensated heart disease was readily revealed. This simple test might also be used to record fatigue, for there was a great difference in the results obtained in ailing children after exercise and after rest. The second respiratory test for children over six years old, who were still too immature or too weakly to use the spirometer, was that of the calipers. As the abdominal breathing was the primary one, measurements should be taken from the back at the level of the tenth rib. In delicate children, or in those suffering from nasal obstruction or from root of the lung disease, there would be no appreciable increase in the lateral diameter. When the increase amounted to two or more centimetres then whatever the physical signs of the lungs, one had the satisfaction of knowing that active metabolism was going on in the body, which would be a potent factor in deciding the result of the effort towards recovery. So valuable and constant was this sign of free lateral movement at the tenth rib that it had been regularly used as a deciding point to determine whether the child should be allowed to be in the open-air recovery home or attend ordinary school. The spirometer was available for children who had full control over their voluntary muscles. Hutchinson's spirometer and the ordinary gas meter were too bulky for carrying about, but were very reliable. The dry meter required watching and re-testing from time to time, but was very handy. The air meter was a portable and combined instrument which registered lung capacity as well as vital capacity. If used for young children as well as for adults it would need double calibration, for the amount of air which passed through it varied with the pressure. It was of great value in measuring the respiratory power of boys entered for athletic contests, etc., but at present was not very valuable for testing young children. The cardiac tests consisted in stating the effort of exercise—first on shortness of breathing, secondly on increase of pulse-rates, and thirdly on length of time taken to return to normal. If combined with ordinary methods of physical examination these heart tests were very illustrative, and served to distinguish the functional from the organic and toxæmic heart in carditis.

Nasopharyngeal Toxæmia and Examination of Swabs of the Naso-pharynx.—Dr. A. SELLERS and Dr. C. T. LAPAGE.—The clinical aspect of the cases was dealt with by Dr. Lapage, who expressed the opinion that naso-pharyngeal toxæmia was a very important disease in children and caused the following troubles: (a) Anæmia and debility with lassitude and general lowered health; (b) loss of appetite; (c) headache; (d) frequent colds; (e) heart symptoms and signs, of which the condition corresponding to the D.A.H. of soldiers was the most frequent; (f) symptoms and signs usually attributed to rheumatism, of which growing pains and tic or habit-spasm were the chief; (g) nervousness and mental depression. Since most of the symptoms could be produced in the early stages of tuberculosis, and since many of them could be produced by bad feeding, loss of sleep and unhygienic conditions, the diagnosis was often difficult. Examina-

tion of swabs from the naso-pharynx by Dr. Sellers in cases with signs and symptoms of toxæmia showed that the number of organisms was increased in many of the cases, indicating that a vicious circle might be established by some illness, such as influenza, which had affected the naso-pharynx. The lowered general health allowed of more organisms, and the large number of organisms lowered the general health. As regards vaccine treatment, it was difficult to isolate definitely from ordinary nasal swabs organisms which gave a clear indication for a specific vaccine.

Œsophageal Obstruction in Young Children.—Dr. HUGH T. ASHBY (*vide* p. 195).

Psycho-therapy in Early Childhood.—Dr. A. DINGWALL FORDYCE stated that psycho-therapy was one of the most valuable means of treatment, and that not only were successful results attainable in early childhood, but that was the time *par excellence* when they were of the greatest value. Whether mother or nurse, the person in charge of a young child should be a woman who, in addition to ordinary knowledge and capacity for dealing with children, was also capable of responding beneficially to the individual mentality of the child. She must understand the inherent desires of childhood and the natural tendency to negativism, and she must be capable, without exercising undue influence or admitting undue licence, so to make use of those characteristics as to render them aids in her welfare for the child. For instance, she must avoid laying undue stress upon the necessity for carrying out any ordinary function of the body—eating, sleeping, urination, movement of the bowels. Undue emphasis often aroused the negativistic trait and defeated its own object, when a less obvious insistence resulted in satisfactory execution. Psychotherapy was applicable in practically all diseases of childhood, and good results were obtained when it was suitably applied and suitably combined with other methods.

Primary Sarcoma of Small Intestine Causing Unusual Symptoms.—Dr. W. MAXWELL TELLING (*vide* p. 192).

Epileptic Convulsions in Children with Marked Intestinal Abnormalities.—Mr. J. H. WATSON reported three cases in which removal of the appendix, division of bands and plication of the cæcum was followed by decided improvement in the convulsions.

Melæna neonatorum Treated by Injection of Fresh Citrated Blood.—Dr. C. P. LAPAGE stated that though injection of fresh blood was a very valuable remedy, care had to be exercised because of the danger of a reaction if the two bloods were not suitable—that is, if the blood of a recipient agglutinated the cells of the donor or *vice versa*. The donors and recipients were divided into four groups, and in these the universal donor group comprised 46.2 per cent. In melæna neonatorum it was questionable whether the problem of agglutination was as important as in cases where large amounts of blood had to be used. In the newborn infant only 15–20 c.c. need be used. According to Lee the grouping was not established at birth, but took place during the first year of life. Dr. Lapage described two cases. Case 1: The child was brought blanched to hospital with a severe attack of melæna neonatorum; 20 c.c. of blood was drawn from the arm of one of the clinical clerks, mixed with 7 gr. of sodium citrate, and

injected into the infant's external jugular vein. The next day the melæna had ceased entirely and there was no recurrence. The coagulation time of the infant's blood was approximately 17 minutes. Three weeks later it was normal—about 9 minutes. Case 2: The infant, who had had very severe melæna, was injected with 15 c.c. of blood obtained from a friend of the father. The melæna ceased at once, and except for passage of two more stools, which contained meconium mixed with blood and which had probably been in the intestine before the injection, the child made an uninterrupted recovery. The coagulation time was about 17 minutes, but a week later it came down to about 10 minutes.

Fragilitas ossium with Blue Sclerotics.—Dr. CATHERINE CHISHOLM showed a girl, aged 8 years, with typical blue sclerotics and traces of seven fractures, one in the right arm and the others in the legs. There was no otosclerosis, no peculiarity in the shape of the head, no family history, but the mother had suffered from dyspepsia during pregnancy. When first seen the girl showed physical and mental signs of thyroid deficiency. Great improvement had followed administration of thyroid, calcium and cod-liver oil, together with massage and electricity. She was now bright, and could stand and walk with assistance.

Partial Fracture of Radius and Ulna in a Breast-fed Infant aged 6 weeks.—Dr. C. CHISHOLM.—There was sudden swelling, tenderness and loss of motion of the right forearm, from which recovery took place in less than a week. X rays showed partial fracture of both bones. There were no blue sclerotics, nor was there a family history of fragility of the bones. The mother had worked very hard during pregnancy, though well fed and in comparatively easy circumstances.

Double Sprengel's Deformity.—Dr. CHISHOLM.—A skiagram showed a mass of bone on the right side extending to the occipital bone. Movement of both arms was very good. The infant was 8 months old.

Renal Infantilism.—Dr. E. BOSDIN LEECH.—The patient, a girl, aged 16 years, had always been small, being smaller at five years than a niece two years old. Her legs were straight until she was thirteen. Since then she had developed acute genu valgum and varum of both legs. The urine, when she was first seen four months ago, contained much albumin; now it showed a mere trace. The systolic blood-pressure was just below 100 mm. Hg. Mental development was somewhat backward.

Congenital Absence of Pectoralis Major and Minor; Elevation of the Scapula.—Mr. GEOFFREY JEFFERSON showed a child aged 9 years, who presented Sprengel's shoulder with associated deformities. The pectoral portion of the pectoralis major was absent, the clavicular head being intact. The hand on the affected side, the left, was distinctly smaller than the right, and the fingers webbed up to the proximal interphalangeal joints. The elevation of the scapula was of the ordinary type without bony spurs. X rays showed that there was no vertebral or other abnormality.

Bilateral Baker's Cysts; Recurrence after Operation.—Mr. JEFFERSON.—Some twelve months ago the patient, a child aged 6 years,

showed swellings behind the knees; they gradually increased in size until there were two small lumps present the size of pigeons' eggs. An operation was performed on both legs, but two months later the child had a fully developed recurrence. There were now two typical Baker's cysts, reducible on pressure when the knees were flexed. The precise nature of the operation was not known, but presumably it was not very radical. The case showed that thorough removal was necessary. There were no signs of disease in either joint.

CLINICAL SECTION.

March the 12th, 1920.

Microcephaly in two sisters, children of first cousins.—Mr. W. G. SPENCER showed these two cases, aged 3 and $1\frac{1}{2}$ years respectively, shortly after craniectomy. The parents were both perfectly healthy, aged between 20 and 25 years, and except that they were first cousins, there was nothing in their personal or family history to explain their children's condition. The operation was performed on the elder child at one sitting and caused no perceptible shock. On the younger child it was done in two stages at a fortnight's interval. There was a little shock after the first, and none after the second stage. The operation consisted in making an incision over the sagittal suture with a short horizontal cut at each end. Then holes were bored in the frontal bone just in front of the coronal suture, one on each side, and the same in the occipital bone behind the lambdoid suture. By means of a circular saw and rongeur forceps, a strip of bone was removed from each parietal bone about 3 cm. in breadth, but tapering at the ends, so as to join the hole in the frontal bone with that in the occipital, thus cutting across both the coronal and lambdoid sutures on each side. After this a strip of bone about 1 cm. in width was removed between the two holes in the frontal bone, a little in front of the coronal suture. Both skulls were thin, like those of a baby under a year. The lines of the sutures were occupied by ridges of soft bone. There was nothing abnormal about the exposed dura mater. The intracranial pressure was not above normal.

The children were now in the same state as before the operation; the gaps made in the skull showed no sign of intracranial tension. In the region of the left parietal eminence of the younger child, the brain was felt protruding and pulsating under the scalp.

SECTION OF DERMATOLOGY.

May the 20th, 1920.

Case of Lymphangioma.—Dr. J. L. BUNCH showed a girl who had had lymphangioma since birth. The angiomatous element was very evident. It was circinate, the centre was clear, and the little lesions were distributed more or less as a circle around. Dr. Bunch stated that the circinate variety of lymphangioma was extremely rare. With regard to treatment, it was necessary to destroy each lesion separately.

Case of Xanthoma tuberosum.—Dr. E. G. GRAHAM LITTLE showed a female infant, aged 3 months. The eruption was noted at birth, and there had been no fresh lesions since then. The eruption consisted entirely of very hard reddish brown tumours about $\frac{3}{16}$ in. in diameter (and about $\frac{1}{8}$ in. above the general skin level), scattered irregularly about the scalp, the face, the upper part of the chest, and less numerous on the forearms. There were well over fifty such swellings. They gave rise to no discomfort, and the child was otherwise in excellent health. On section one of the tumours showed a uniform infiltration of the whole corium right up to the level of the epidermis with a very homogeneous type of round connective-tissue cell. The cells seemed to be arranged in rows like the cells of pigmented nævi, and the tumour was undoubtedly of nævoid character. Such cases were very rare, and could scarcely be distinguished from urticaria pigmentosa except by histological tests.

Case of Onychogryphosis.—Dr. GRAHAM LITTLE also showed a boy, aged 6 years, in whom the nails of both thumbs were converted into claw-like appendages raised from the matrix, curved, with the convexity outward, and about $\frac{1}{2}$ in. long. On the left medius there was an earlier phase of the same condition, the nail being thickened, separated from the matrix, but without the curvature of the thumb-nails. The left hallux was similarly affected. The disease existed for 12 months previously. Scrapings from the thickened area under the nail were negative. The child lived in a mews, which suggested the possibility of ringworm infection.

Epidermolysis bullosa.—Mr. HALDIN DAVIS showed a boy, aged 3 years, in whom the condition was present at birth, and there had been steady progress of the disease since. The nails were very badly formed, and some of them were not formed at all. The teeth were very carious. Since he had been in hospital there had been some improvement, but some fresh bullæ had appeared, stained with hæmoglobin. The patient did not show Nikolski's sign. He was the only case in the family.

June the 17th, 1920.

Case of Trichotillomania.—Dr. E. G. GRAHAM LITTLE.—The patient was a girl, aged $4\frac{1}{2}$ years. There were two other children in the family, aged 8 and 5 years, who were perfectly healthy and had shown no similar symptoms. There was no history of epilepsy or night terrors. When first seen by Dr. Graham Little in August, 1919, the scalp over the right parietal area was nearly wholly bald, very much like an X-ray alopecia. The child could be observed to pull her hair herself at all hours of the day but not in her sleep or at night. More recently she had contracted another habit, viz. that of breaking the nail and sucking the fingers. There was no local irritation nor change to be found in the scalp on the side affected, which was probably determined by proximity to the right hand. The habit seemed to have been formed as early as the age of two years, and the hair grew quite normally after plucking and was again attacked. The wearing of a muslin cap had been suggested. Dr. Graham Little had never seen a record of a case developing at so early an age.

In the discussion the PRESIDENT, Dr. A. WHITFIELD, stated that he had cured a case by keeping the hair clipped to about $\frac{1}{8}$ in. for about two years, during which time the habit was forgotten.

Case of Epidermolysis bullosa.—Dr. GRAHAM LITTLE showed a boy, aged 5 years, in whom the condition was congenital. A previous child had been born with the same condition, and died at the age of 15 days. The parents were healthy, and there was no hereditary history. The nails of the hands and feet were entirely absent, and were stated never to have been formed. The fingers were tapering and slightly atrophied at the tips. There was a patch of congenital dark pigmentation covering the outer border of the hand on its dorsal surface and the greater part of the fifth finger. There were numerous large and small bullæ, many of them hæmorrhagic, on the hands, the forearms, the face and trunk, and bullæ formed with extreme frequency and rapidity on sites of pressure. The teeth had decayed very early. The conjunctivæ were normal, but the mucosa of the tongue was thickened. Speech was retarded, but the child was otherwise apparently of normal intelligence. The blood-count was normal.

Pityriasis rubra pilaris.—Dr. H. W. BARBER showed a child, aged 4 years, in whom the eruption had begun on the head four months ago as scaly patches. There was then no eruption on the face or body. Two months later the face, trunk and limbs became involved rather rapidly. His general health had always been good, except for an attack of chickenpox. The urine showed a large excess of indican, and gave a marked phenol reaction, which was very rare in children of his age. Possibly it had nothing to do with the ætiology of the condition, and was due to his enormous appetite.

Bilateral Morphœa in Children.—Dr. G. PERNET showed two cases. The first was a girl, aged 14 years, who presented two transversely oval and symmetrical patches over the angles of the scapulæ. They were very superficially sclerosed, and had diminished under massage—the only treatment employed. The patient had a poor circulation, and suffered from chilblains in the winter. The second case was a girl, aged 5 years, in whom the patches were very faintly marked, but exhibited a slight amount of lilac bordering. They were transversely oval and situated below the level of the angles of the scapulæ, the right one being a little to the right as compared with the left. The patches had greatly improved under massage.

Case of Oil Acne.—Dr. AGNES SAVILL showed a baby, aged 19 months, who had had camphorated oil frequently rubbed on the chest for so-called bronchitis since the third week of life. For whooping-cough in March she had had an embrocation which was oily, but different from camphorated oil. Some blackheads appeared early in May, and numerous inflammatory pustules developed after the embrocation was stopped.

Case of Pemphigus.—Dr. J. L. BUNCH showed a boy, aged 10 years, who had developed pemphigus when three days old, and had had recurrent crops of the disease ever since. The trunk and limbs were covered with innumerable small bullæ, some ruptured, but mostly containing a clear fluid and rising from an entirely uninfamed base. There was no herpetiform grouping, no itching, and the general health was unaffected. The contents of the bullæ were sterile. There was no reason to suspect syphilis, and there was no similar disease in the family. The pemphigus improved under local treatment, but the disease always recurred after a day or two.

Vitiligo with Central Pigmented Moles.—Dr. J. L. BUNCH also showed a boy, aged 14 years, with a large number of vitiligo patches scattered over the trunk and limbs. They varied much in size and were mostly irregular in shape. A few were definitely circular. On the right side of the neck was a white patch, about the size of a sixpence, and in the centre of this was a small pigmented brown mole. It was elevated slightly above the surface and could easily be felt. On the right side of the chest was a larger vitiligo patch, about the size of a crown, with a similar brown mole in the centre. But the mole was larger, more elevated, and rather darker in tint. Over the right scapula was another white patch, about 4 by 1½ in., oval, and sharply marked off from the surrounding healthy skin. Running on its long axis was a large brown pigmented mole about 3 in. long. It was raised about ½ in. above the surface, was papillomatous, and covered with coarse, rough scales. Dr. Bunch referred to a similar case which he had shown in January, 1918 (*vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1918, xv, p. 43).

As regards treatment, he proposed to excise the largest mole. He had recently seen a case in which similar pigmented moles remained quiescent for many years, and then rapidly took on the characters of melanotic sarcoma.

Urticaria pigmentosa.—Dr. BUNCH also showed a baby, aged 9 months, covered with brown urticarial lesions, some macular and some definitely raised. The lesions varied in size. There was little irritation, and the baby only scratched at night.

SECTION OF LARYNGOLOGY.

May the 7th, 1920.

Baby with Depressed Bridge of Nose.—Mr. W. DOUGLAS HARMER.—No abnormality was noted at birth; the infant was breast-fed for three weeks, had marked snuffling, difficulty in breathing through the nose, and occasional discharge. The bridge of the nose began to drop when the child was three weeks old and the deformity had steadily increased. X rays showed that the nasal bones were depressed, but there was no evidence of destruction or fracture. The child was well nourished, had had no rash nor enlargement of the spleen. The Wassermann reaction was negative in the mother and child.

Congenital Deformity of the Œsophagus.—Mr. W. APPELYARD showed a specimen of congenital deformity of the œsophagus removed from the body of a sixteen days old female child who died from starvation as a result of the defect.

Latent Sinusitis in Children.—Dr. P. WATSON WILLIAMS stated that while infective sinusitis in adults, associated, as was usually the case, with symptoms suggestive of a sinus infection, was very commonly suspected and diagnosed, similar conditions arose in children of all ages, but were more likely to remain undiagnosed unless attended with acute or manifest symptoms. Acute sinusitis in infants was rarely localised, but involved the nasal mucosa and the relatively undeveloped sinuses as a whole, usually with

symptoms of purulent rhinitis, which might become chronic or subside into a recurring non-purulent nasal catarrh or eventuate in cure; or, on the other hand, result in producing a large area of external suppuration as described by Skillern. In children between the ages of four or six and fifteen years a nasal sinus infection was more liable to be localised, and occasionally with symptoms such as led one to suspect nasal sinusitis in adults. A chronic or recurring nasal catarrh in a child was usually attributed correctly to adenoids or to infected tonsils, and if the symptoms persisted after an operation for their removal, the child was supposed to have a recurrence of enlarged tonsils and adenoids, and a second, and sometimes a third, operation was performed. The symptoms of chronic latent sinusitis were essentially similar to those of infected tonsils and adenoids, *viz.*, a recurrent nasal catarrh, buccal respiration, catarrhal deafness, aprosexia, mental backwardness, and chronic sepsis. In the sphenoidal sinus cases especially, other symptoms might arise, such as restriction of visual and colour fields, but if they were not suspected and sought for, they passed unnoticed. More serious symptoms of chronic sinus infection were the results of infecting organisms passing continually on the one hand into the gastro-intestinal tract and sometimes affecting the appendix; while on the other hand the trachea and lungs might become involved, tracheitis, pneumonia, and possibly a tuberculous infection being determined. Diagnosis: a persistent anterior unilateral nasal discharge was highly suggestive of a sinus infection provided the presence of a foreign body could be excluded. A posterior rhinoscopic view showing pus or muco-pus in one choana was similarly strong evidence of a nasal sinusitis. Examinations must be made on more than one occasion to eliminate the possibility of an adventitious collection being mistaken for persistent secretion. The most useful methods of examination in the writer's experience were (a) endorhinocopy, and (b) exploration of the sinuses by the suction syringe. (a) Endorhinocopy in children from the age of seven onwards was often possible with local anæsthesia, but, on the other hand, was often impossible without a general anæsthetic. When a definite streak of pus was observed to be coming from the speno-ethmoidal region or from the middle meatus of one or both sides, the evidence of the corresponding sphenoidal or antral cavities being the source of the purulent discharge was almost conclusive. (b) Exploration of the maxillary antral and sphenoidal sinuses by means of the suction syringe was most valuable, but necessitated a general anæsthetic in children. If definite pus was sucked into the syringe one had clear proof of the cavity being infected. Unfortunately the exploration of the sphenoidal sinus in young children was far less easy than that of the maxillary antra and not so free from risk.

SECTION OF OPHTHALMOLOGY.

November the 5th, 1919.

Injury to the Fundus Oculi at Birth.—MR. H. R. JEREMY.—The patient was a girl, aged 7 years. The mother had noticed an external squint of the right eye since the child was seven months old. The birth of the child was attended with difficulty and the left eye was injured. On admission there was left external strabismus of the left eye, which fixed badly. There was no muscular paresis. Vision consisted of perception of light only. Vision in right eye was $\frac{6}{18}$. The left cornea was clear, pupil

equal to right, reacted to light directly and consensually, and to accommodation. The media were clear. The disc was paler than normal, and appeared sunken above; the retinal vessels were contracted and passed directly over the lower edge of the disc without distortion. Above and to the outer side of the disc there was a mass of connective tissue extending outwards towards the macular region. Retinal vessels were seen running over the mass and disappearing below the upper edge of the disc.

Case of Birth Injury. —Mr. W. H. McMULLEN showed a girl, aged 7 years who had had much bruising of the left eye at birth. Delivery was carried out under chloroform. The mother did not know if forceps were used. The eye had always looked smaller than the other. At the present time there was left enophthalmus with slight downward and outward strabismus; the ocular movements were good. The left eyeball was smaller than the right. Transverse diameters of corneæ: Right 12 mm., left 11 mm. There was a large mass of fibrous tissue in the vitreous, of roughly conical shape, extending from a broad irregular base, covering the disc, to a small irregular head at apex just behind the lens. There was a good deal of pigmentation about the base. Direct pupillary light reflex absent, consensual present. The mass of fibrous tissue in the vitreous was probably the result of hæmorrhage due to birth injury—possibly avulsion of the optic nerve.

Partial Avulsion of the Disc, with Ectasia. —Mr. W. H. SIMPSON.—The patient, a boy, aged 12 years, was struck in the right eye by a firework on June the 27th, 1919. On the same day he was admitted to hospital. On admission the right eye showed a small wound of the conjunctiva between the limbus and the outer canthus. The pupil was irregularly dilated and was tucked back on the outer side. The lens was clear and dislocated inwards. There was much vitreous hæmorrhage and commotio retinæ, which obscured details of the fundus. He could perceive light with the eye, projection was defective down and in and the tension was subnormal. The left eye was normal with a vision of $\frac{6}{6}$. The patient was kept in bed for three weeks with atropine in the right eye. On July the 23rd the vitreous had partly cleared and there was no commotio retinæ. The retina was seen to be in position but the disc was obscured by an unusual appearance, details of which, owing to the state of the vitreous could not be made out till August the 2nd, when a good view was obtained. The disc was then seen to be included in a horizontally oval ectactic are bounded internally by the nasal margin of the disc and extending outwards towards the macula. The area presented a much paler reflex than the rest of the fundus, and was sharply defined, except below, by superficial retinal pigmentation. Round the macula there was pigmentation and some cicatricial tissue formation. The retinal vessels, on entering the area showed a decided bend similar to that seen in early glaucomatous cupping and once in the ectasia they were out of focus. The walls of the ectasia were steep at the disc, above and below, but towards the macula the slope was more gradual. The ectasia was rather too shallow for accurate measurement; the disc was the deepest part and the vessels there were brought into focus by -2 dioptries. Below the area there was much retinal degeneration, and at the periphery the only abnormality was guttate pigmentation. The patient could count fingers at 6 in., projection was defective down and in, and the tension was subnormal.

February the 4th, 1920.

New Growth of the Retina.—Mr. N. BISHOP HARMAN.—A boy, aged 4 years, was seen late in October, 1919. His doctor thought there was cataract in the left eye. The boy was a little fellow, but his parents, too, were unusually small. He was an only child. His health was good. There was no defect other than that of the eye. The Wassermann reaction was negative. The mother stated that she noticed something wrong with the left eye when he was fourteen months old. When she was teaching him to walk the light came from behind her and made his eye shine; she saw the reflection several times, but thought nothing of it until her doctor observed it. The right eye was healthy; there was nothing out of the natural order except 1 D. of hypermetropia. The left eye was immediately noticeable owing to the presence of a large white, oval body behind the lower part of the iris; it looked just as if the lens were dislocated and opaque. Focal illumination brought out this oval mass in strong relief and illuminated the whole of the interior of the eye. Examination with the ophthalmoscope showed the whole of the fundus to be covered to a fairly uniform depth from ciliary region to centre and in almost every part with masses of white material. The masses were all more or less spherical; they varied greatly in size; some were but little larger than the diameter of a vein at the disc, others were as big as a dislocated lens. Most of the masses were separate from each other—that is, they had no visible connection—but close to the central region there was a pair attached, shaped like a cottage-loaf of bread. Most of the masses were immobile, but two or three in the centre floated with the movement of the eye; they did not leave their positions, but swayed so freely that their attachment (whatever that might be) must have been very slender, and the vitreous must have been fluid to allow of the movement. The masses were white, with a suggestion of transparency; they had a nap or slightly fluffy surface that suggested solidity. With one exception no blood-vessels could be seen in connection with the masses; the sole exception was a fine vessel curling round a mass in the upper and outer part of the fundus. In a very few spots the colour of the fundus could be seen between the masses; in these small areas the vessels seen had an irregular distribution. Transillumination gave an appearance which was difficult to make out; light entered the eye between and around the masses, but it also appeared to pass through the masses and to be inversely proportional to their size. Until fourteen days ago the eye had caused no sense of discomfort, and there was a total absence of symptoms of irritation. The cornea, lens and iris were normal; there was a consensual pupillary reaction, and the vitreous was free from opacity where there were no white masses. In the last fortnight there had been pain in the eye, the vessels of the conjunctiva and ciliary region had been enlarged and the iris discoloured; the tension of the eye had increased. Until these signs appeared Mr. Harman had hesitated to advise the removal of the eye. The long period of the known presence of a reflecting mass in the eye (three years), the total absence of any sign of irritation, the absence of change during repeated examination over three months, the unlikeness of the appearance of the masses to any usual form of glioma, left room for uncertainty as to the danger of the eye. The change in the last fortnight left none; but the parents refused to allow the removal of the eye.

The appearance of the fundus was remarkable. Mr. Harman did not remember having seen anything at all approaching this character before and could find no description of a similar growth.

Addendum (June the 22nd).—As a result of the statement made to the mother of the child by various members at the meeting she agreed to the removal of the eye. The operation was performed two days later. A long length of nerve was removed with the eye. The free end was found to be healthy, but close to the globe there was a suspicious knuckle. After hardening, this was cut and found to be part of the new growth, which was a glioma. The orbit was watched carefully; one month later the socket was seen to be bulging suspiciously. The contents of the orbit were therefore exenterated, including the stripping of the periosteum.

After hardening, the contents were cut across and new growth was found in the centre. The outside of the excised mass was free from growth.

The cavity was now clean and would be shortly grafted. The boy would be kept under regular observation and report made later if there were any further signs of recurrence. His general health remained good.

June the 9th, 1920.

Herpes Ophthalmicus in a Child aged 3 years.—Mr. G. W. ROLL showed a child in whom the attack occurred in February simultaneously with chickenpox, the latter affecting the whole body. The eruption on the brow had the typical distribution of herpes ophthalmicus and the scarring was very definite. Some of it travelled down the nasal nerve to the tip of the nose, and the cornea was also affected. There was no surface lesion and no involvement of the iris. There was no oculo-motor paralysis. Mr. Roll alluded to a case reported by Barber of a child, aged 6 years, who had simultaneous herpes ophthalmicus and herpes zoster.

In the subsequent discussion the President, Mr. W. T. HOLMES SPICER, said that he had seen several cases of the association of herpes ophthalmicus and chickenpox.

Mr. J. H. FISHER said he had seen a family in which one member had chickenpox and the other herpes ophthalmicus. He had also seen an infant under 12 months of age with herpes ophthalmicus and was struck with the fact that the baby was not inconvenienced by the attack, although it was a severe one from the cutaneous and ocular point of view.

Mass Obscuring the Optic Disc.—Mr. J. F. CUNNINGHAM showed a boy, aged 5 years, whose left eye had been struck by the handle of a scythe about 9 months previously. Right vision: $\frac{6}{6}$. Left vision: No perception of light, tension normal. There was a mass in the position of the nerve-entrance coming far forward into the vitreous and numerous folds were seen extending down and in front. There was some choroidal disturbance in the region of the posterior pole.

Congenital Malformation in the Outer Canthus.—Mr. W. H. McMULLEN showed an infant in whom the outer extremities of the lids were separated by a low pad or cushion covered with skin which passed on to the conjunctiva. He did not think that there was a dermoid there; there was only a thin cushion of subcutaneous tissue; there was no deformity of the outer margin of the orbit, and the limits of the subcutaneous swelling were not well defined.

Abstracts from Current Literature.

Surgery.

Congenital cysts of the neck (*'La Pediatria,'* 1919, xxvii, p. 790).—**C. Romano**, who records six illustrative cases in children and adults, states that compound or multilocular serous cysts of the neck occurring in intra-uterine life are more or less well developed at birth, and sometimes of an enormous size, whereas dermoid cysts do not appear until some years afterwards—as a rule not before puberty or adolescence and sometimes even later. The site of predilection for serous cysts is the left side of the neck, where they often develop in the subcutaneous tissue and sometimes in the subaponeurotic tissue. As a rule they do not cause any inconvenience. The only rational treatment for dermoid cysts is removal, the operation usually not offering any great difficulties. In the case of multilocular serous cysts extirpation is often impossible owing to the size and adhesions with the tissues and neighbouring organs. J. D. ROLLESTON.

Congenital absence of both clavicles (*'Journ. Amer. Med. Assoc.,'* 1919, lxxiii, p. 1526).—**W. G. Stern** reports a case of a boy, aged 6 years, who had an entire absence of both clavicles, except small rudiments about half an inch long articulating with the sternum and bearing the origin of the clavicular portion of the sterno-cleido-mastoid. There were no other anomalies. The absence of clavicles did not interfere with the use of the arms or diminish the strength of the muscles in this region. The patient's two brothers, father and the father's three brothers were similarly affected, but the patient's sister and the father's three sisters were normal in every way. J. D. ROLLESTON.

Congenital malformations of the spine (*'New York State Journ. Med.,'* 1919, xix, p. 161).—**C. D. Reid** mentions among possible causative factors: (1) Heredity. (2) Maternal pelvic anomalies, maternal trauma, faulty nourishment from the maternal circulation, oligohydramnios, amniotic adhesions, placental malformations, multiple pregnancies. (3) Intra-uterine diseases of the foetus, such as rickets, syphilis, etc. (4) Anomalies of muscular development. Among the malformations considered are spina bifida, congenital scoliosis and cervical rib. The following conclusions are reached: (1) Congenital effects of the spine are by no means as rare as they were formerly supposed to be. (2) Radiographic study of all cases complaining of backache, or cases presenting visible deviations from the normal curves, no matter how slight, should be made, as frequently the diagnosis will be at once cleared up, and the patient saved a long, expensive period of medication or inefficient mechanical treatment and kept out of the hands of charlatans and quacks. (3) Treatment of congenital scoliosis in patients of adolescent or adult age is frequently more satisfactory than in cases of acquired curvatures. (4) Operative measures are for carefully selected and skilled operators. J. ALLAN.

Statistics of spina bifida (*'La Pediatria,'* 1920, xxviii, p. 32).—**R. Vaglio** gives the following statistics of spina bifida observed at the Pædiatric Clinique of Naples University from 1913–1919. Twenty-three

cases were found among about 10,000 infants, or 1 in 434. Thirteen were females and 10 males. Most of the children were brought to the hospital a few days after birth, less frequently in the first few months, and only two cases were not seen until they were 1 and 2 years old respectively. As regards the situation of the lesion, apart from one case of double spina bifida, the tumour in the largest proportion of cases (12) was in the lumbosacral region, in 3 in the sacral, in 3 in the lumbar, in 2 in the dorso-lumbar, and in 2 others in the lower dorsal and cervical regions respectively. The size of the tumour varied, as a rule, from that of a large walnut to that of a large orange. In only one case was the tumour considerably bigger, being about the size of a foetal head. The skin was almost intact in 8 cases, intensely reddened and vascular in 5, and ulcerated in 7, in 3 there was an escape of cerebro-spinal fluid. In only 1 case was there a tuft of hair present over the tumour. As regards the family history, syphilis was noted in only 3 cases, in another 6 cases its presence was shown either by the hereditary history and clinical evidence or Wassermann reaction. In only 1 case was the existence of other cases of spina bifida in the ascendants or collaterals noted. In one case the mother was tuberculous. As regards concomitant affections, 7 cases had hydrocephalus, 6 club-foot, 4 paralysis of the lower limbs associated in two with club-foot, 1 had Little's disease, 1 cleft palate, 1 multiple malformations of the anus and genitals, and 1 multiple small nævi of the scalp.

J. D. ROLLESTON.

A case of encephalo-meningocele (*'La Pediatria,'* 1920, xxviii, p. 230).—A. Versari describes the case of a male child, aged 4 days. In the occipital region was a swelling the size of an orange, normal in colour at the periphery, bluish at the centre, soft in consistence but not fluctuating. It was removed without anaesthesia, the child making an uneventful recovery without showing any appreciable functional lesion or nervous disturbance. Death, however, took place two months later of malnutrition. The tumour consisted of a meningeal cyst surrounded by gelatinous connective tissue. Histologically, definite cortical nerve-cells were absent.

VINCENT DICKINSON.

Anomaly of the diaphragm (*'Amer. Journ. Dis. Child.,'* 1920, xix, p. 55).—L. R. Debuys records a case of herniation into the thorax of the stomach, transverse colon and great omentum in a female child, aged 4 months. Gastric and intestinal obstruction resulted. Death from shock occurred during the operation. The defect of the diaphragm through which the hernia took place was a developmental error, which occurred at the point at which in the developmental progress of the membranum transversum the attachment is completed last, namely, on the left side and posterior aspect.

J. D. ROLLESTON.

A study of achondroplasia (*'Amer. Journ. Dis. Child.,'* 1920, xix, p. 1).—T. F. Wheeldon states that achondroplasia is characterised by symptoms of dwarf growth (shortness of extremities, vertebral column and chest and looseness of the skin) and symptoms of infolding (shortening of the basis cranii, sagittal narrowing of the foramen magnum, depression of the nasal bridge, narrowing of the choanæ, reduction in the size of the sella turcica, with consequent reduction in the size of the pituitary body and changes in the spine). The changes in achondroplasia which are produced between the third and eighth weeks of intra-uterine life are

probably due to the smallness of the amnion except in rare cases. Wheeldon records six illustrative cases, two of which presented a new symptom, viz. a wedge-shaped vertebra, which he classifies among the group of symptoms of infolding.

J. D. ROLLESTON.

Chondrodysplasia (*'Amer. Journ. Dis. Child.,'* 1920, xix, p. 189).—**H. L. Dwyer** reports four cases of this condition, three of which occurred in the same family. Many variations of hereditary deforming chondrodysplasia may be met with, ranging from the multiple small cartilaginous exostoses, giving the patient no trouble, to great deformities with dwarfing, paralysis, aneurysm and malignancy. The disease manifests itself in infancy. One of Dwyer's patients, who was aged 20 months, is the youngest in whom the disease has been reported. The disease has much in common with chondrodystrophy of infancy and adolescence and probably a close relationship exists between them.

J. D. ROLLESTON.

Gigantism of the breasts (*'Dub. Journ. Med. Science,'* 4th ser., 1920, p. 187).—**B. F. Honan** reports a case in a girl, aged 16 years. The breasts were amputated, and histological examination showed a structure similar to that of fibro-adenoma, with a small amount of cellular infiltration in the neighbourhood of some of the gland acini.

J. ALLAN.

Traumatic aneurysms in childhood (*'Rev. Españ. de med. y cir.,'* 1920, III, p. 379).—**M. H. Vegas** reports three cases of traumatic aneurysm in children, which were the only examples of aneurysm among 25,000 admissions to a children's hospital at Buenos Ayres. The first case occurred in a boy, aged 15 years, who, as the result of a pistol-shot, developed an aneurysm of the left internal carotid, followed by right hemiplegia and aphasia. A good result was obtained by ligature of the left common carotid. The second case was in a boy, aged 12 years, who developed an aneurysm of the left radial artery by cutting his arm with a piece of glass. The sac was ligatured above and below and removed. Atrophy of the thenar and hypothenar eminences as well as of the interossei ensued, but improvement took place under massage and electricity. The third case, which occurred in a boy, aged 15 years, was an example of arterio-venous aneurysm at the base of Scarpa's triangle inflicted by a chisel. Reconstructive endo-aneurysmorrhaphy was performed, with an excellent result.

J. D. ROLLESTON.

Fracture-dislocation of cervical spine in a child (*'Med. Journ. Austral.,'* 1920, I, p. 311).—**J. G. Edwards**.—A skiagram revealed fracture of the odontoid process of the axis and forward dislocation of the atlas in a child, aged 4 years, incurred as the result of an accident. The dislocation was reduced by the anæsthetist by suddenly pushing forward the lower jaw and extending the head during the administration of the anæsthetic.

F. R. B. ATKINSON.

Bronchitis due to empyema of the maxillary antrum (*'Med. Journ. Austral.,'* 1920, I, p. 487).—**A. E. Mills** describes three cases, in a boy, aged 6 years, girl, aged 9 years, and a boy, aged 14 years, in all of whom empyema of the antrum was associated with bronchitis. He considers the bronchitis was the primary trouble, and that other parts of the respiratory tract, including the antra, became infected.

F. R. B. ATKINSON.

Gastric perforation in an infant ; streptococcal peritonitis (*Arch. de méd. des enf.*, 1920, XXIII, p. 490).—**Phélip and Fey** record the case of a female infant, aged 1 month, admitted to hospital with signs of general peritonitis. Death took place shortly after the operation. At the autopsy a complete perforation was found on the posterior surface of the stomach 1 cm. above the insertion of the great omentum and about 6 cm. from the pylorus. There was also an incomplete perforation $1\frac{1}{2}$ cm. away from the first on the inner aspect of the stomach. Examination of the peritoneal fluid showed an abundance of streptococci. The rest of the organs were macroscopically normal. The exact nature of the gastric ulcers could not be determined.

J. D. ROLLESTON.

A large hernia in a male child (*Brit. Med. Journ.*, 1919, 1, p. 610).—**N. E. Waterfield**.—A boy, aged 7 years, was brought to hospital on account of a large swelling on the right side of the scrotum. The swelling measured 12 in. in circumference and extended half-way down the thigh. It was irreducible. At the operation the sac appeared to contain the whole of the large intestine, from the ileo-cæcal valve to the sigmoid flexure, including the appendix and great omentum. With difficulty this mass was reduced into the abdominal cavity, and the opening at the neck of the sac obliterated.

J. ALLAN.

Two unusual cases of inguinal hernia (*Edin. Med. Journ.*, 1919, 1, p. 388).—**C. F. M. Saint**.—A female child, aged 3 years, had a right inguinal hernia, which was increasing in size and could not be controlled by palliative measures. At the operation the uterus and both ovaries were found in the upper part of the sac. They could be returned to the abdomen, but came out again at once. On closer examination the right round ligament was found to have no intra-abdominal course, so that the right horn of the uterus was really attached to the neck of the hernial sac, and while there was a very long broad ligament on the left side, the right one was very short and almost absent. The second case, a male between 2 and 3 years of age, had a double inguinal hernia, which was only partially reducible on either side. On the right side there were two hydroceles of the cord and on the left side a single hydrocele of the cord. On both sides the hydrocele and hernial sacs were removed.

J. ALLAN.

Acute appendicitis with ileo-cæcal ectopia (*Rev. méd. Suisse rom.*, 1920, XL, p. 113).—**Cornioley** records a case in a boy, aged 9 years, who presented all the signs and symptoms of acute appendicitis, including McBurney's point. On laparotomy the cæcum was not in its usual position but was found beneath the liver, where it represented the whole of the ascending colon, and curled up beneath was an inflamed appendix, which was removed. Ectopia of the cæcum is not very rare. In some cases the cæcum may be situated in the pelvic cavity, and in others in the lumbar, perirenal or subhepatic areas, as in the present case. All these positions, which are of congenital origin, indicate an excess or arrest of movement of this organ in fetal life or in the first few years of extra-uterine existence. The occurrence of tenderness at McBurney's point and its absence in the subhepatic region are explained by supposing the existence of a skin area supplied by a spinal segment in which the sensory nerves of a definite part of the alimentary canal terminate.

J. D. ROLLESTON.

Sarcoma of the omentum in a child (*'La Pediatria,'* 1920, xxviii, p. 526).—**V. Sala** records a fatal case of small-celled sarcoma of the omentum in a boy, aged 4 years, which exemplified the following points: (1) Tumours of the omentum may grow very large in children, and as the result of their size and relations to neighbouring organs may lose their mobility, which is the principal characteristic of peritoneal tumours, so that the diagnosis is almost always difficult. (2) Pain is an almost constant symptom of tumours of the omentum. (3) Throughout the course of these tumours the symptoms due to pressure on the subjacent organs almost entirely dominate the clinical picture. (4) Sudden death is liable to occur, not as the result of cachexia, but owing to compression caused by the enormous development of the tumour.

J. D. ROLLESTON.

Circumscribed traumatic serous peritonitis (*'Il Policlinico,'* ser. prat., 1919, xxvi, p. 1427).—**G. Aboularage** reports a case in a 'boy, aged 7 years, following a violent blow in the epigastric region. The result was a contusion of the stomach and transverse colon without perforation, followed by adhesive peritonitis between the two viscera, and finally perforation, which was favoured by the action of the gastric juice on the walls of the stomach and colon. Signs of intestinal hæmorrhage, adhesive peritonitis and circumscribed serous peritonitis in the upper left quadrant of the abdomen set in, and finally a cystic cavity formed, which on laparotomy was found to be situated between the spleen, stomach, colon and omentum. A post-traumatic gastroentero-anastomosis had obviously taken place, which accounted for the patient's rapid loss of flesh. Owing to his bad general condition further operation was not advisable and death took place one month after the operation.

J. D. ROLLESTON.

A case of rupture of the liver, with recovery (*'Med. Journ. Austral.,'* 1920, i, p. 32).—**L. Doyle**.—A boy, aged 8 years, was run over by a motor car, and all the symptoms of the case suggested rupture of an abdominal viscus, probably the liver or spleen. Laparotomy was performed and a large tear found in the liver. This was packed with gauze to stop the excessive hæmorrhage and transfusion performed. In due course recovery took place.

F. R. B. ATKINSON.

Ophthalmology,

Family degeneration of the macula lutea (*'Journ. Amer. Med. Assoc.,'* 1919, lxxiii, p. 1328).—**R. Blue** reports an example of this condition, which was originally described by R. D. Batten in 1897, occurring in a father and daughter. The ætiology is unknown. The disease usually attacks several members of a single childship. The parents commonly show no ocular or other abnormality. It is unusual for more than one generation to be affected. Gentiles are much more frequently attacked than Jews. Sex does not play any considerable rôle in its occurrence. The disease is bilateral. It appears between the ages of 7 and 35, but most cases develop between 10 and 14. A slowly progressive course characterises the disease. After a comparatively rapid onset with failure of vision, long periods of arrest may occur. It may finally progress to central blindness. The periphery of the retina, however, is spared, and blindness, idiocy and death do not occur. Objectively the findings are those of a lesion at the macula lutea.

J. D. ROLLESTON.

A case of epicanthus and congenital ptosis (*Med. Journ. Austral.*, 1919, I, p. 509).—**F. A. Pockley**.—The patient, a girl, whose age is not stated, showed extreme epicanthus and ptosis; the fold of the former partly covered the cornea of each eye, and the bilateral ptosis was so great that the child could not see without raising the eyelid with her finger. The epicanthus was removed by a modification of Rogman's operation, the shape of the incisions being slightly altered and the V-shaped portions of skin excised instead of being transposed. The epicanthus was dealt with first and the ptosis removed a few weeks after by Hess' operation of subcutaneous fixation of the lid to the occipito-frontalis. The result was very successful.

F. R. B. ATKINSON.

Vaccine treatment of ophthalmia neonatorum (*Gaz. hebdom. des Sci. méd. de Bordeaux*, 1920, XLI, p. 78).—**E. Ginestous** has treated three cases of ophthalmia neonatorum with Nicolle and Blaizot's anti-gonococcal vaccine. In the first case, in which the treatment was started five days after the onset, both eyes were affected and there was ulceration of the right cornea. After two injections of the vaccine with twenty-four hours' interval between each, the suppuration subsided and recovery took place. In another recent case recovery also followed two intra-gluteal injections. Local treatment was associated with vaccine therapy in both cases. On the other hand, the result was negative in an infant, aged 10 days, five days after the onset of the infection. The suppuration was not checked by six injections, one of which was given daily, and a cure was not obtained until after a fortnight's local treatment. Ginestous comes to the conclusion that the vaccine has a real anti-gonococcal action, but that its occasional failures forbid giving up the classical treatment.

J. D. ROLLESTON.

Phlyctenular ophthalmia in children (*Med. Times*, 1920, XLVIII, p. 94).—**P. A. Harry** designates this condition the ocular sign of scrofulosis. He describes a typical case. With regard to treatment, success will depend on the recognition of the fact that the disease is as much a constitutional as a local one. General treatment must be directed towards an alteration of the scrofulous state. A course of treatment with hyd. cum. cret. together with reduction of carbohydrates in the dietary will prove effective. Injections of tuberculin are useful for the obstinate cases, but not as a routine treatment; even more important are healthy surroundings, fresh air, sunlight, and removal from sources of infection. With regard to local treatment, atropine is only necessary in the case of deep ulcers; the old-fashioned remedies, such as the yellow oxide of mercury ointment and drops of 1 per cent. silver nitrate, are still useful in the majority of cases. During convalescence cod-liver oil and malt or an emulsion of the oil by itself will prevent recurrence. Attention should be paid to the mucous membrane of the nose and throat and nasal obstruction corrected.

J. ALLAN.

Adenoids, chronic conjunctivitis, photophobia (*New York State Journ. Med.*, 1919, XIX, p. 374).—**G. D. Scott** calls attention to the intimate relationship between eye affections and naso-pharyngeal disease. He reports a case of chronic conjunctivitis in a girl, aged 6 years, which was cured after the tonsils and adenoids had been removed. Photophobia and blepharospasm were extreme.

J. ALLAN.

Ocular symptoms caused by osteomyelitis of the upper jaw in infants (*Nederland. Tijdschr. v. Geneesk.*, 1920, II, p. 294).—**E. Marx** has collected thirty-five cases, including three of his own, in infants aged from 3 days to 9 months, in whom ocular symptoms were caused by osteomyelitis of the upper jaw. The cause of the osteomyelitis in the various cases was infection of the nipple, facial erysipelas, injury done by forceps and septic vaginitis. The causal organisms in the few cases in which a bacteriological examination was made were staphylococci, streptococci and gonococci. The ocular symptoms were œdema of the eyelids, lacrymal fistula, conjunctivitis, chemosis and exophthalmos. Eighteen of the cases recovered, 10 died, and in 7 the issue was not recorded. **J. D. ROLLESTON.**

Splinter of wood in anterior chamber (*Med. Journ. Austral.*, 1920 I, p. 577).—**J. L. Gibson**.—A splinter penetrated the cornea, passed into the anterior chamber, and crossed it and lodged at the irido-corneal junction of the other side. The lens and iris were uninjured except where the splinter impinged on the iris. The splinter was removed, and the pus-like exudation which occurred after the injury gradually diminished. The patient was a boy, aged 7 years. **F. R. B. ATKINSON.**

Hernia of vitreous into the anterior chamber (*Med. Journ. Austral.*, 1920, I, p. 387).—**J. L. Gibson** describes this unusual condition in a boy, aged 11 years, who had been treated at the age of four years for an injury to the same eye. **F. R. B. ATKINSON.**

What should be our routine in examining cases of squint? (*New York State Journ. Med.*, 1920, XX, p. 181).—**A. Duane** discusses the investigation of cases of strabismus under the following headings: (1) *Ætiological types of squint.* (2) *Role of refraction anomalies and defect of fusion sense in causing squint.* (3) *Diagnosis as affected by successive examinations.* (4) *Light afforded by history of case.* He then details the plan of examination. **J. ALLAN.**

The diagnosis, prophylaxis and treatment of plumbic ocular neuritis amongst Queensland children (*Med. Journ. Austral.*, 1917, II, p. 201).—**J. L. Gibson**.—A recent paralytic squint in a child below 8 years of age without an increase of temperature should make one suspicious of lead-poisoning. If the condition of the fundus is not distinctive lumbar puncture should be performed at once. The child should be kept in bed away from painted surfaces and put on salines, dilute sulphuric acid and potassium iodide after some days in 5-gr. doses. The source of the lead is painted railings. **F. R. B. ATKINSON.**

Congenital word-blindness (*Med. Journ. Austral.*, 1920, I, p. 593).—**R. G. Macleod** describes three cases in the same family, all boys, aged 16, 14 and 12 years respectively. **F. R. B. ATKINSON.**

Exophthalmic goitre in a girl (*Brit. Med. Journ.*, 1918, II, p. 465).—**C. W. Gittens** reports a case in a girl, aged 11 years. All the typical signs were present. With rest in bed and treatment by X rays once a week marked improvement has taken place. An interesting point noted was that the blood-count showed 33 per cent. of lymphocytes. **J. ALLAN.**

Reviews.

ARCHIVOS DE MEDICINA, CIRURGIA Y ESPECIALIDADES (PUBLICACION QUINCENAL). Redaccion y Administracion Carranza, 20, Madrid. Annual subscription: Spain, 30 pesetas; abroad, 45 pesetas.

WITHIN recent years medical journalism in Spain has shown a remarkable activity, as is seen by the creation of numerous journals devoted to various branches of medicine, including pædiatrics, hæmatology, cardiology, and tuberculosis. We now offer a hearty welcome to a new fortnightly publication which appears under the editorship of Drs. J. Sanchis Banús, A. G. Tapia, V. Celada, R. Fraile, E. Carrasco, J. Torre Blanco, G. Garcia Casal, and José Madinaveitia, with the collaboration of Juan Madinaveitia, L. Urrutia, L. Olivares and G. Marañón. Each number consists of a review or some matter of present day interest, such as the question of aphasia and the variety or plurality of the syphilitic virus, followed by abstracts from the current literature of medicine, surgery, obstetrics and gynaecology, ophthalmology, dermatology, syphilis, and oto-rhino-laryngology. J. D. R.

A SYNOPSIS OF MEDICINE. By HENRY LETHEBY TIDY, M.A., M.D., F.R.C.P., Assistant Physician to St. Thomas's Hospital, Physician to the Great Northern Hospital. Bristol: John Wright & Sons, Ltd., 1920. Price 25s. net.

THIS work, which is a companion volume to Hey Groves's 'Synopsis of Surgery,' aims at providing a synopsis of the principles of medicine which are of importance at the present time. Its general arrangement is that of Osler's text-book, with the exception of the sections on diseases of the nervous system, of the alimentary system, of the blood and of the circulatory system. Dr. Tidy emphasises the fact that his "synopsis" is not intended to replace a text-book, but is designed for those who have to revise rapidly their knowledge of medicine in general or of some disease in particular—a class which includes the student, the practitioner, the lecturer and examiner. The book is admirably suited for this purpose and is well up to date, including as it does an account of the influenza epidemic of 1918, lethargic encephalitis, trench fever, the artificial pneumothorax treatment of pulmonary tuberculosis, diseases of deficiency in which rickets and infantile scurvy are included, and Babinski's and Freud's theories of hysteria. We miss, however, any mention of Vincent's angina, which even now has not received general recognition in this country.

We wish the work the success which the immense amount of labour involved in its composition deserves. J. D. R.

CLINICAL METHODS: A GUIDE TO THE PRACTICAL STUDY OF MEDICINE. By ROBERT HUTCHISON, M.D., F.R.C.P., and HARRY RAINY, M.D., F.R.C.P. Edin., F.R.S.E. With 16 colour plates and 157 figures in the text. Seventh edition. Revised throughout. London: Cassell & Co., 1920. Price 12s. 6d. net.

THE success of this indispensable manual is shown by the fact that barely four years have elapsed since the last edition (*vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1917, xiv, p. 158) and that four reprints have appeared in the interval.

Additions have been made to the chapters dealing with the examination of the heart and of the urine, and several new figures and plates have been added. J. D. R.

FEEBLE-MINDEDNESS IN CHILDREN OF SCHOOL AGE. By C. P. LAPAGE, M.D. 2nd Edition, 1920. Pp. xiv-309. London: Longmans, Green and Co. Price 10s. 6d.

WE are pleased to welcome a second edition of this book, which, although not sufficiently detailed for the physician who is specially concerned with defective children, whether in the consulting room or institution, is nevertheless a useful and clear introduction to the subject for the general practitioner or the lay worker in this field. In addition to a general description of the clinical features of feeble-minded children, the author discusses the causation of this condition, as well as the chief methods of administration. His treatment of this subject strikes one as being somewhat unequal, and the seven pages devoted to a very elementary description of infection and the characteristics of the chief infectious and contagious diseases seem somewhat out of place. The very practical appendix on training and management by Miss Mary Dendy, whose great interest in, and experience of, the feeble-minded are well recognised, is a valuable addition to the book. A. F. T.

THE MENTAL HYGIENE OF CHILDHOOD. By W. A. WHITE, Superintendent, St. Elizabeth's Hospital, Washington. London: W. Heinemann. N.D. Pp. xi + 193. Price 6s. net.

THIS little book by a psychiatrist in general sympathy with psycho-analysis, but not apparently in the closest touch with it, is one of that numerous order which really present amateur variations upon the theme of a master. However, as might have been expected from the name of the publisher, it is an unusually favourable specimen of the type indicated. The author can write and—which is much the same—think. The only fault that lets him down is his ignorance of sexology generally, as untouched by Freud. This is a common shortcoming of Anglo-Saxon Freudians, but it is unfortunate for his present purpose, which is to extol nurture at the expense of nature, education instead of heredity, infection, as it were, instead of predisposition. For instance, he duly gives Freud's theory of a passing phase of homosexuality at puberty which is reached through narcissism. Of course (as he does not mention) Dessoir has insisted upon a sexual undifferentiation, regarding sex of object, at that epoch; but when Dr. White goes on to teach that adult homosexuality is just a persistence of this passing phase, he neglects the very serious objections to such a theory. To begin with, one need not read, in Moll or Havelock Ellis, many case-histories of inversion to see that there may exist plain evidence of abnormal feeling in early childhood, long before puberty. Again, according to Hirschfeld, psycho-analytic treatment of adult inversion has been a complete failure. Still again, there is the obvious bearing of Steinach's work to be disposed of. The author's minimising of the former bogey of masturbation is of course correct. He does not mention "Angst" from unsatisfied libido. Will it be believed that Freud's name is unmentioned, also, throughout? However, this is preferable to the effusions that used to appear, only a year or two ago, in English medical journals, calling psycho-analysts frauds and pornographers. When will an apology for this urbane attitude be offered? But the times are proving, in fields much wider than psycho-analysis, a saying of a countryman of Dr. White: "Truth," wrote Bryant, the author of 'Thanatopsis,' "will survive if run over by a locomotive; error dies of lockjaw if it pricks its little finger." We are in for a steady and disconcerting display of this phenomenon these next few years. W. C. R.

BRIGHTNESS AND DULNESS IN CHILDREN. By HERBERT WOODROW, Ph.D., Associate Professor of Psychology in the University of Minnesota. Philadelphia: J. B. Lippincott Co. Price 6s. net.

THIS is one of the educational guide series. So much has been written about children at the top and the bottom of the scale—the genius and the mentally defective respectively—that it has obscured to some extent the question of the variations of intelligence of those children who can be classed as within the mean intellectually. The author covers a large field, dealing, as he does, with the relation of mental and physical factors, anatomical and pedagogical ages, psychology, heredity and the organisation of education, but he does it well, and there is a large amount of information in the book, together with many useful quotations and references from the literature of the subject.

The author shows that intelligence can be used in two senses, one to indicate mental age and the other to indicate brightness—just as the word “height” can be similarly used either to indicate actual height in inches or to indicate the state of tallness or shortness. Mental age intelligence increases as the child grows older. He limits the word “intelligence” to the first, *i.e.* mental age, and uses the term “brightness” to indicate the second. He suggests the use of the term “intelligence quotient,” *i.e.* $\frac{\text{mental age}}{\text{chronological age}}$. This quotient, provided it remains constant and is not due to transient conditions, enables us to calculate what degree of retardation there will be at later ages. In the chapter on “Brains” it is held that because the greatest part of the development and growth of the brain takes place in the first few years of life, the most critical period of the child’s life is the years before he enters school, and that the level of brightness is usually determined during these years.

When dealing with “medical inspection” the author very rightly emphasises the need of following up the cases and seeing that the recommendations of the medical inspector are carried out.

The chapter on anatomical age is interesting and informing. The methods of determination of this age are described and illustrated by radiograms and tables. Much work has been done on this subject by American observers, and it is important because the determination of the anatomical age and its relation to the chronological age helps greatly in estimating whether the child can be submitted to the full pressure of school life or not. The author holds that the well-established fact that on the basis of chronological age girls do better in school than boys is because girls are usually of a superior anatomical age.

There are chapters dealing with mental processes and describing tests for these. In the chapter on the organisation of education the need for different training for dull and superior children is emphasised. Bright children need a different quality of education to dull ones. Many bright children are kept back seriously because they cannot obtain as much education as they can assimilate without mental or physical strain.

C. P. L.

RADIANT MOTHERHOOD. By MARIE STOPES, D.Sc., Ph.D. Pp. 246. 8vo. London: G. P. Putnam’s Sons, Ltd., 1920. Price 6s. net.

IN this book it is stated that morning sickness, lineæ albicantes, and abdominal pigmentation can be wholly, fall of the breasts largely, prevented;

that, in a healthy family, genius can be produced almost to a certainty by marriage with "the long-young late-maturing type of woman I have just described"; and that current social revolutionary tendencies are due to embittered feelings inherited from mothers with minds embittered by over-frequent pregnancies. The authoress quotes no special sexualogical literature except Havelock Ellis, does not know what perversion is, prescribes, although without a medical qualification, diet suitable for pregnancy, and in her peroration styles herself "God's prophet." Some of her correspondents' letters would be useful to a writer on coitus during pregnancy. Further items to the credit side of the account are an easy flow of rhetoric, and the ability to secure the confidence of the public on a delicate matter.

W. C. R.

PHARMACOPEIA OF THE QUEEN'S HOSPITAL FOR CHILDREN, BETHNAL GREEN, LONDON, E. Prepared by a Committee of the Medical Staff. Sixth edition. H. K. Lewis & Co., 1920. Price 4s. 6d. net.

THE present edition of this Pharmacopœia, which is edited by Dr. T. H. G. Shore and Dr. G. Bourne, Assistant Physicians to the hospital, differs from the last edition, published in 1911 (*vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1911, viii, p. 480), by the omission of some formulæ and the addition of others, notably a group of emulsions in which petroleum forms the basis. In Appendix B certain changes have been made in the directions to mothers in bringing up infants, including the substitution of three-hourly for two-hourly breast feeds from the start. Simple rules for the prevention of summer diarrhœa as adopted by the Medical Officers of Health of Bethnal Green and Hackney have been added.

J. D. R.

LA EPIDEMIA DE GRIPPE DE 1918-19. Par JOSE W. TOBIAS. Tesis aprobada por la Facultad de Ciencias Médicas et 31 de Julio de 1919. Buenos Aires: A. Guidi Buffarini, 1920.

THIS thesis, which has been awarded the "Facultad de Ciencias Médicas" prize of Buenos Aires, University is devoted to the study of the epidemic of influenza in the Argentine in 1918-19. The epidemiology, bacteriology, morbid anatomy, symptomatology and prophylaxis are discussed, but a consideration of treatment is not included. The author holds the view that pandemic influenza is distinct from influenza nostras and maintains that the ætiological agent of pandemic influenza is a filterable virus, the respiratory complications being caused by organisms of secondary infection. Numerous cases are recorded and an extensive bibliography is appended.

J. D. R.

MÉTHODES NOUVELLES DE DIAGNOSTIC BIOLOGIQUE ET DE TRAITEMENT DE LA SYPHILIS HÉRÉDITAIRE. By A. LAFAYE. Paris: A. Legrand, 1920.

IN his thesis Dr. Lafaye reviews the modern methods of diagnosis and treatment of inherited syphilis. As regards methods of diagnosis, he considers the Wassermann reaction as far more reliable than the luetin test which, in his experience at Prof. Marfan's Clinic, gives a considerable percentage of positive reactions in infants with no clinical or serological evidence of syphilis.

Many of us will not agree with him that the external jugular vein is the best place from which to obtain blood for the Wassermann reaction; a much simpler procedure is to puncture the heel with a Hagedorn's needle.

With regard to treatment, Dr. Lafaye is a strong upholder of intravenous injection of neosalvarsan, either by the external jugular, the veins of the scalp or the dorsal vein of the foot. We are glad to note that injection of the longitudinal sinus is not recommended as a route for intravenous injection, but is mentioned as a means of obtaining blood for the Wassermann test. We learn, however, that this method has been abandoned in Marfan's clinic, owing to the danger of shock.

It is curious that the excellent results obtained by intramuscular injections of glucose-galyl in syphilitic infants has received little or no attention in France, more especially as this preparation is of French production.

Although Dr. Lafaye does not hold that mercurial treatment can be entirely superseded by neosalvarsan, he relegates it to the background, and makes little mention of it in his thesis. In this, we think, he will find many who disagree with him. C. F. M.

CONDENSED MILK. By Dr. P. LASSABLIÈRE, Director of the Laboratory of the Faculty of Medicine, Paris. Published under the auspices of the monthly review, *La Médecine*, Paris.

WE have been favoured with a copy of a brochure, 'Condensed Milk,' by Dr. P. Lassablière, the purpose of which is frankly to direct attention to the wide sphere of usefulness of this variety of milk. After a short historical *résumé*, the author discusses the manufacture and composition of condensed milk. He then deals with its value from the hygienic, physiological and clinical points of view. Its value as a food and for therapeutic purposes is also considered. It is shown that this milk is of undoubted service in infant-feeding, and can also be utilised with advantage in the gastrointestinal troubles of infancy, in dysentery, in the diarrhœa of tuberculous patients, etc. It has proved of great benefit in the superalimentation of tuberculous and other patients. This little brochure is essentially practical, and should stimulate interest in the scientific use of condensed milk. The book deserves to be widely read. J. A.

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